

# **Sudbury Ponds and Waterways Committee**

## **Master Plan Appendix 3 – Watersheds**

**Last updated April 2013**

## ***General History***

The history of Sudbury and the history of its ponds and waterways cannot be told in the absence of each other. What Sudbury was in its first 200 years, where its settlers chose to build their homes and what they did to survive in their new world and to feed their families cannot be told without understanding Sudbury's water bodies and streams.

First, the original Sudbury settlement, in what is now Wayland, was established west of the rapidly growing Boston area along the east side of what is now the Sudbury River. Its wide and productive meadowland provided deep and rich soil to grow crops and the river provided fish to eat. But as the Town grew, the next generation one by one moved to the west side for land of their own. Eventually when the west and east side decided to become separate Towns, it was the river that became the natural Town boundary.

As settlers moved to the west side of the river they, as those before them, located their homes along the streams. This was for water, for fish, and where dams could be built to form ponds and to provide waterpower. Sudbury was largely a settlement of farmers who raised crops to feed their families and their livestock and as the community grew beyond initial log cabins, they needed power to saw trees into boards, to grind grain into meal and flour, to form iron in nails and other forms needed for the greater community and also to provide the energy for other small scale manufacturing to support the local economy. By the late 1800s and the invention of electricity, the waterpower was also used in a few places to generate electricity.

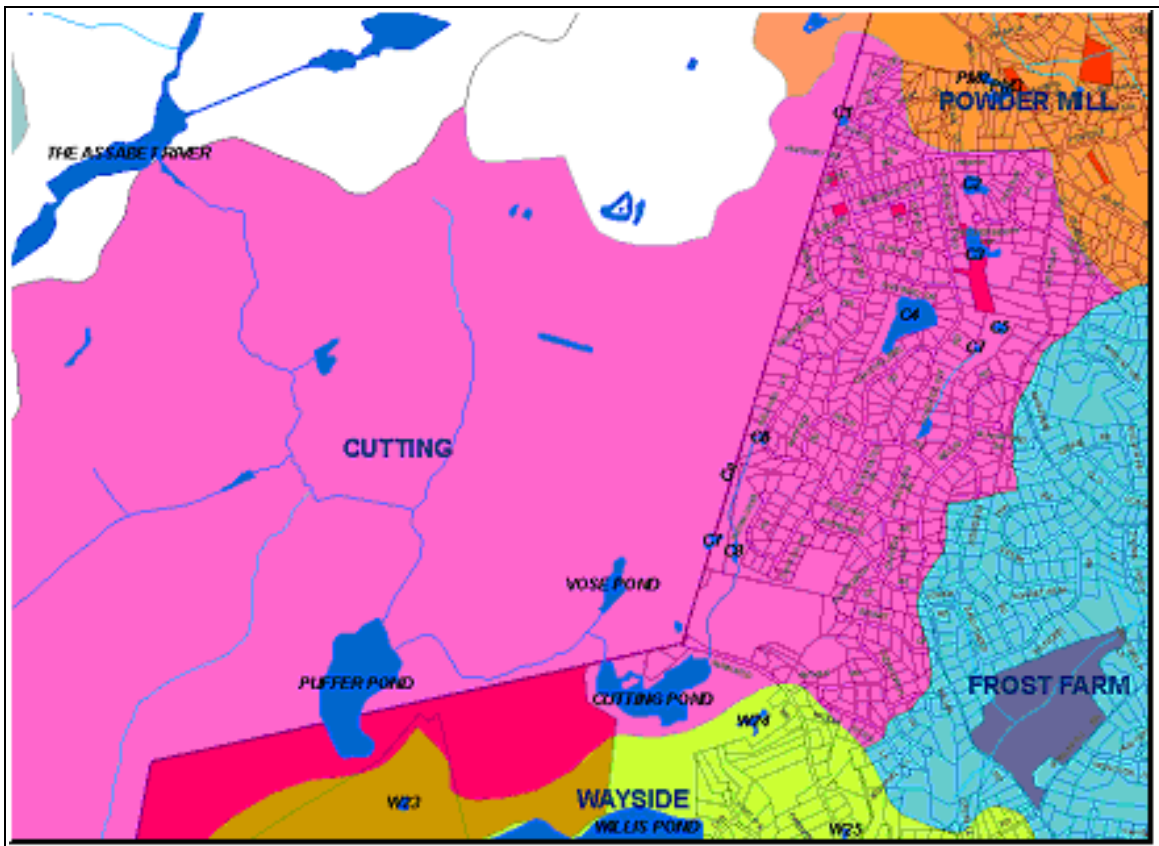
Very few of the ponds in today's Sudbury were natural – most were created by our ancestors to provide water and power. Most of these ponds and dams were on Hop Brook (or Snake Brook as it has been called) as this brook is by far the largest and longest in Town. But ponds and mills also existed on Pantry Brook and its tributaries.

All of Sudbury's watersheds lead to the Sudbury or Assabet Rivers, which flow into the Concord River, then into the Merrimack, and finally into the Atlantic Ocean at Newburyport.

## Cutting Watershed

### Overview

The Towns of Maynard (majority), Sudbury, and Stow comprise Cutting Watershed. Within the Watershed, in Sudbury, there are three significant bodies of water lying, only one of which is publicly owned. In addition, there are a few small privately owned ponds.



### History

Although most of the Cutting watershed is now located in Maynard, almost the entire watershed was once in Sudbury as the Town of Maynard was not incorporated until April 1871 from Assabet village. Most of the developed portion of Cutting watershed lying within Sudbury is known locally as the Bowker area and is located west of Willis and Mossman Roads between Route 117 on the north and Route 27 on the south. The Bowker area is named after the Bowker family who inhabited Sudbury as early as 1707. According to Alfred S. Hudson's 1889 *History of Sudbury*, "Sudbury is but 3 ponds of any considerable magnitude;" Puffer, Willis (largest in Wayside watershed), and Bottomless (now called Crystal Lake in Wayside watershed) Ponds.

According to Sudbury Valley Trustees (SVT) Executive Director Ron McAdow, Puffer Pond bears the name of its former owners. The Puffer family first moved to Sudbury from Braintree in 1712. In 1743, Jabez and Mary Puffer bought the farm containing the pond from Ephraim Pratt. The pond was still labeled Pratt's Pond on the Mathias Mosmon Map from April 17, 1795, but

Puffers persisted and multiplied, and their 36-acres of spring-fed fresh water came to be called Puffer's Pond.

While Cutting Pond doesn't appear on the Mosmon Map, the property surrounding Cutting Pond has been farmed by the Cutting family since the late 1600s. In 2004, the Cutting family offered to preserve 54 acres of their parcel by selling a combination of land and a conservation restriction to the Town of Sudbury. The public will have access to the land covered by the conservation restriction including Cutting and Willis Ponds on a network of marked trails.

Before World War II, the western portion of Cutting watershed consisted of small family farms and wood lots, some dating back to colonial times. According to The Friends of the Assabet River National Wildlife Refuge (<http://www.farnwr.org>), the area was once known as the Fort Devens Sudbury Training Annex, and was placed off-limits by the Army since 1942 when the federal government acquired it for an ammunition storage facility. The Annex was transferred to the Fish and Wildlife Service on September 28, 2000, and then became the Assabet River National Wildlife Refuge.

### **Issues and Opportunities**

Significant wetlands exist between Cutting and Puffer Ponds. Almost all of the Cutting Watershed lying in Sudbury was identified in a 1978 wetlands evaluation report to be of moderate value to the Town's water supply. The Watershed also provides excellent habitat for wildlife, particularly waterfowl, songbirds, and small mammals. Now that much of this area is part of the Assabet River National Wildlife Refuge, the land surrounding the wetlands is protected from development, but the area is still affected by development (i.e., runoff).

### **Recreation**

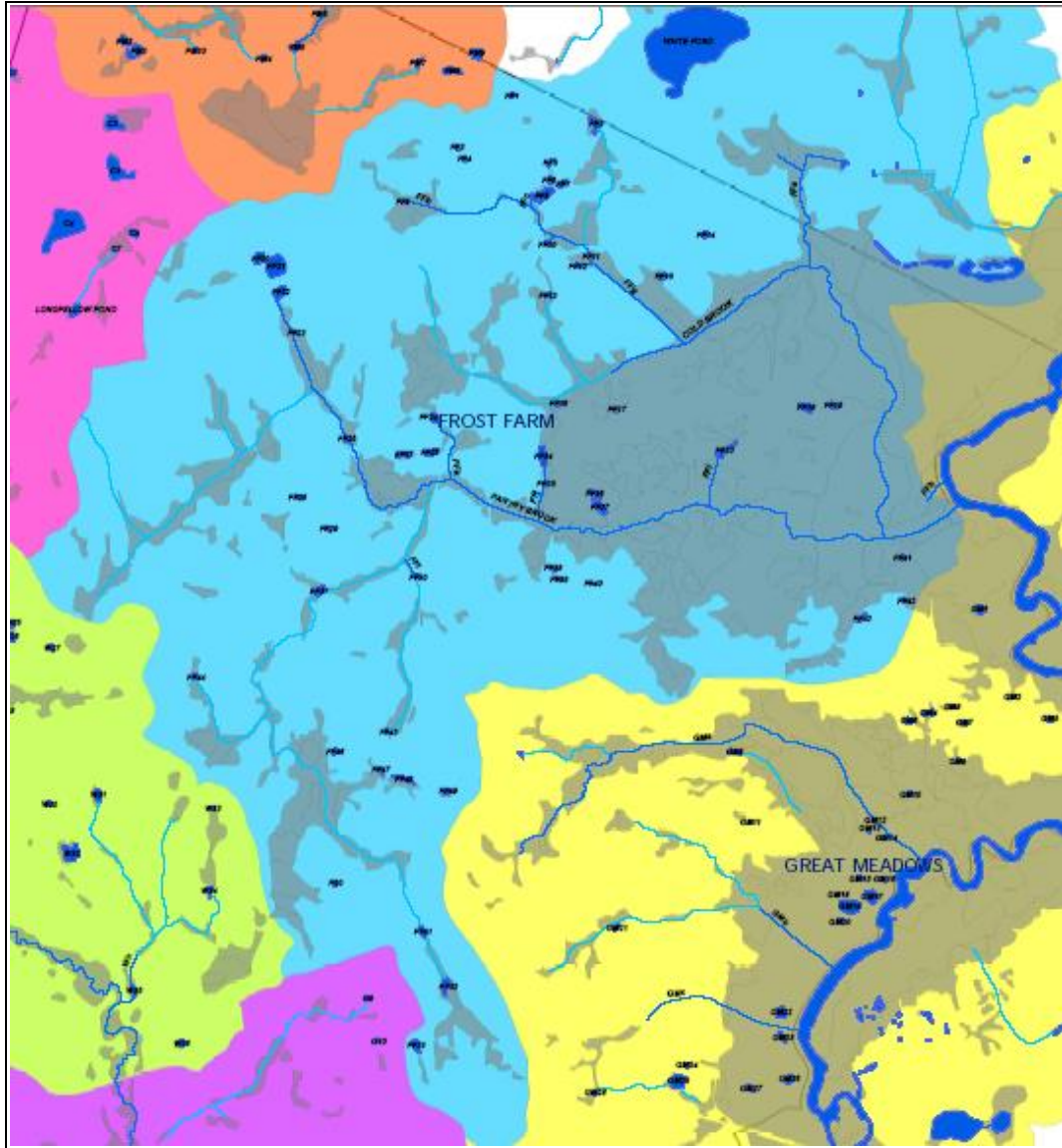
Further research should be done into the potential recreational uses for Cutting Pond including access from the Assabet River National Wildlife Refuge. Recreational uses for Pond C3 might also be further explored. The beaver dam situation at the outflow of Cutting Pond should continue to be monitored for opportunities to remediate the issues associated with flooding and tree loss in the wetlands along Route 27.

## *Frost Farm Watershed*

### **Overview**

The Frost Farm Watershed drains an extensive area of north central Sudbury into the Sudbury River and is entirely outside of the influence of the Hop Brook drainage area that meanders through most of the remaining parts of Town. It contains many ponds and waterways, including Cold Brook which merges into Pantry Brook not far from where both meet the Sudbury River close to the Town line with Concord. Numerous Town conservation and recreation areas are located within this watershed. Major resource features found within the Frost Farm Watershed include White Pond, just over the border in south Concord, and the 400-acre Pantry Brook Wildlife Management Area. The abandoned railway proposed for conversion into the Bruce Freeman Rail Trail divides the Frost Farm Watershed almost exactly in half along its north-south dimension.

The southern portion of the watershed at Sudbury Center is drained by Mineway Brook. It originates in the western portion of the Piper Conservation Area, runs west behind the Peter Noyes Elementary School across Concord Road and north of Route 27, and then north to Pantry Brook, west of the abandoned railway. Pantry Brook appears to originate at the ponds at Camp Sewataro and drains eastward to the Sudbury River. Cold Brook appears to originate just west of Pantry Brook Road, north of Route 117. These riverways and associated network of ponds provide drainage, wildlife habitat and recreational opportunities.



## **History**

This watershed is named after the former Frost Farm, located on the North side of Route 117 across from the Davis Farm soccer fields. The Frost Farm House was built around 1850 and is a modified colonial that sits on about an acre of land. It is adjacent to the Frost Farm Village condos and abuts conservation land, which offers hiking trails leading to White Pond.

## **Issues and Opportunities**

The Town of Sudbury maintains a stormwater management plan (SWMP) to meet regulatory obligations associated with Phase II of the National Pollution Discharge Elimination System permit requirements covering discharge of stormwater. This compliance program is overseen jointly by the Department of Public Works and Conservation Coordinator. Typical SWMPs specify best management practices (BMPs) regarding the use of road salt, street sweeping, infrastructure maintenance, public

education, etc. to improve the quality of stormwater runoff before discharge to a surface water receiving body.

Failing septic systems have the potential to impact surface water. Residents are required to have their systems inspected at the time of property transfer to comply with Title V regulations. Sudbury's Board of Health administrator actively inspects septic systems as the Town sanitarian, and provides public outreach services to educate residential and commercial property owners to procedures for properly maintaining their onsite disposal systems. (Outside of the Frost Farm Watershed, numerous systems are known to be functioning improperly along Route 20 and Union Avenue but efforts to install a sewer system as an alternative have been unsuccessful.)

There are numerous agricultural activities within the watershed, primarily along Concord Road, Lincoln Road, and Great Road (Route 117). In addition to cultivated fields with probable application of agricultural amendments (fertilizers, lime, manure, pesticides-herbicides, etc.), a horse farm with turnouts, paddocks, and stables is located on Concord Road. These activities have the potential to become non-point sources of pollution and could adversely affect surface water quality unless appropriate BMPs have been implemented.

A major underground release of chlorinated solvents was reported from the former Sperry Rand facility at Frost Farm and addressed in the 1980s. Contaminated groundwater migrated to the south of Route 117 where a pump and treat remediation system remains operational on Verrill Farm property. Another treatment system located to the north of the release in Concord, towards White Pond, apparently has been abandoned.

#### Wetland Significance

In 1954, the Pantry Brook Wildlife Management Area (PBWMA) was created by the then Massachusetts Division of Fisheries and Wildlife, now the Massachusetts Department of Fish and Game. At that time, approximately 410 acres of land along Pantry Brook and Cold Brook were acquired to preserve and manage wetland habitat to the benefit of the wildlife species that it supported. An earthen dam, about 400 feet long and 5 ½ feet high, was replaced in 1988 at a location of approximately 1,000 feet west of the confluence of Pantry Brook with the Sudbury River. The purpose of the constructed embankment was to maintain a permanent marsh in response to documented dramatic loss of marsh habitat in Sudbury during the 20-year period of 1951 to 1971. The marshland occupies about 135 acres with a depth of impounded water of less than two feet. Species targeted to benefit at the time the PBWMA was established were expected to include various species of herons, ducks, and turtles, and other wildlife and plant species.

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and associated network of ponds provide drainage, wildlife habitat and recreational opportunities.

### **Recreation**

Many of Sudbury's most valued active and passive recreational assets are located within the Frost Farm Watershed including SVT and Town conservations lands, and the privately owned Camp Sewataro with its recreational ponds used for swimming and boating. Public playing fields are located at the Featherland sports complex, on Concord Road and the Davis Farm soccer fields on Route 117. Playing fields are also located at four public (Peter Noyes, Nixon, Haynes, LSRHS) and two private schools. Conservation lands accessible to the public are suitable for nature walks, cross country skiing, snow shoeing, and, in some cases, mountain biking and horseback riding. Well-maintained hiking trails can be found at: the Barton Conservation Land; conservation lands at Davis Farm and LSRHS; Frost Farm (and connecting trails to White Pond); Lincoln Meadows and SVT's Round Hill; Piper Farm Conservation Land; and Poor Farm Meadow.

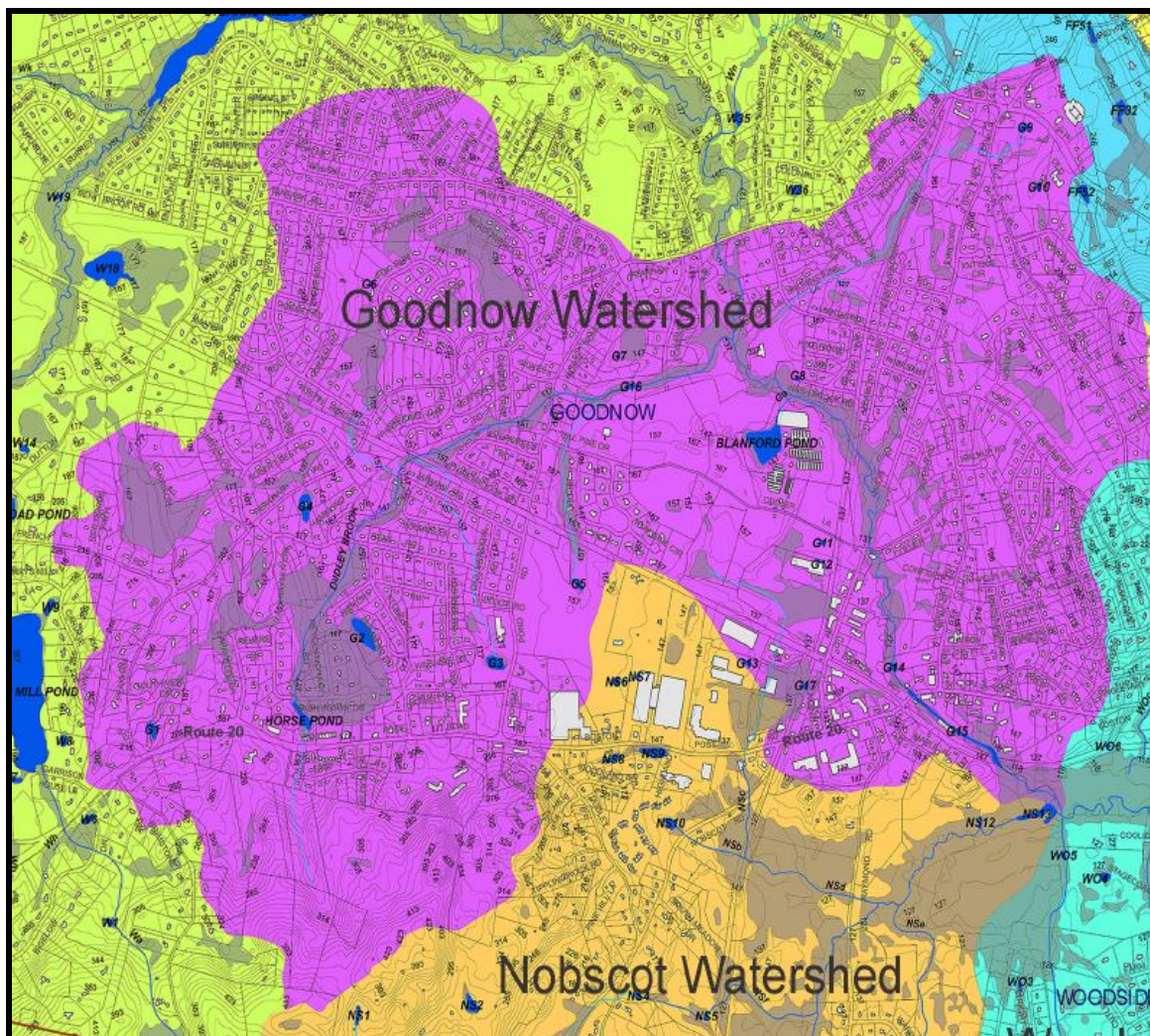
Most conservation areas have associated wetlands, streams, and ponds that provide habitat for diverse wildlife. These areas are well suited for passive recreation uses supporting hobbies such as camping (with appropriate permits), bird watching and nature photography, but are not well suited for fishing, swimming, and canoeing/kayaking. Ice skating is possible on even the smaller ponds, conditions and safety considerations permitting.



## Goodnow Watershed

### Overview

The Goodnow Watershed is located in the center of the Town of Sudbury, and is the only of the nine watersheds that lies totally in Sudbury and is not shared with another Town. It spans an area north of Boston Post Road, a bit south of Stearns Mill Pond, a bit east of Carding Mill Pond and Dutton Road, and west from Goodman's Hill. The Watershed contains two named ponds – Horse Pond and Blanford Pond – and two named streams/brooks – Dudley Brook and Hop Brook. There are 17 other unnamed surface water features. Part of Hop Brook flows from north to south through the eastern third of the Goodnow Watershed. Dudley Brook flows out of Horse Pond in the southwest corner of the watershed and ends as it intersects Hop Brook.



### History

#### Hop Brook

Hop Brook flows from north to south, marking off the eastern section of the Goodnow Watershed. All of the brooks in Goodnow Watershed drain into Hop Brook, which then

drains into the Sudbury River. Hop Brook begins in Marlborough and approximately nine miles of the brook wind through Sudbury, forming an upside down “U” shape, entering the Town at the southwest corner (Grist Mill Pond), flowing northeast and north to Stearns Mill Pond, a bit over three miles west of the center of the Town, then it flows basically west to east for about two miles, turns and flows southeast to Mill Village, then east into the Sudbury River. Hop Brook and its millponds and wetlands have been very important in the Town’s history and development. According to the Mossman map of 1795, “In Sudbury, there are 3 grist Mills, two Sawmills & one fulling Mill on a Stream known by Several Different Names.”

The brook has had many names over the years: The Mossman map of 1795 labels it (from upstream to down stream), Snake Brook, Wash Brook, Hop Brook, Mill Brook, West Brook (thus the “Stream know by Several Different Names” reference above); on the 1830 map of Sudbury (Flynn Building), it is called Larnum Brook; on the 1889 map (*Atlas of Middlesex County*) it is Hop Brook and Wash Brook. Even current maps label the brook differently, especially the area after the brook crosses Route 20; some call it Hop Brook here, some label it Wash Brook and some have it as the eastern side of Allowance Brook as it enters the Sudbury River. The 2012 MA Integrated List of Waters clarifies the situation and calls it Hop Brook, very specifically saying that it is Hop Brook including “From the confluence of Allowance Brook, Sudbury to the confluence with the Sudbury River, Wayland (this segment was formerly identified as Wash Brook, Hop Brook appeared as Wash Brook and Allowance Brook was previously identified as Landham Brook on USGS quads prior to 1987).”<sup>1</sup>

### Blanford Pond

Blanford Pond is located on the private property of Cavicchio Greenhouses. According to the Gazetteer of the State of Massachusetts published in 1890, “Blanford Pond (is a) fair and valuable sheet of water stored with perch and other edible fish.” It is significant in being one of the few spring-fed ponds not part of one of the brook systems. Before electricity and freezers, the winter ice was harvested from Blanford by the Moores, and stored in ice houses to be delivered to Townspeople in the summer.<sup>2</sup> After the Cavicchios purchased the property in 1910, they used the ice on the farm throughout the summer.<sup>3</sup> There have been several spellings of the pond name over the years.<sup>4</sup>

### Mill Village

Mill Village, which is in the southeast corner of the Goodnow Watershed, has been a commercial center since 1659 when Peter Noyes and Abraham Wood built the Town’s first gristmill on Hop Brook. In the 18<sup>th</sup> century and early 19<sup>th</sup> century, the area became

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<sup>1</sup> 2012 MA Integrated List of Waters, pg 131

<sup>2</sup> Scott, pg 88

<sup>3</sup> *Images of America: Sudbury*, pg 116

<sup>4</sup> Several spellings of the pond are noted: Blanford: Google Maps & 1987 Geological Survey Topographical Map; Blandford’s: 1830 map at Town offices (Flynn Building); Blandford: 1889 map from *Atlas of Middlesex County* & 2010 Sudbury Map at the Flynn Building; Blanchard’s: *Images of America: Sudbury*.)

an industrial center with brickyards, a tannery and other shops along the brook.<sup>5</sup> The railroad came through in 1871 and very soon the north/south Lowell and Framingham line intersected the Central Mass Division of the Boston & Maine Railroad at the Junction Depot in South Sudbury. The Lowell Framingham Railroad had stops in all three villages, North Sudbury, Sudbury Center and South Sudbury.

By the late 1800s, the area was considered quite a progressive and included a general store, a post office, a machine shop, a blacksmith, a schoolhouse, a church, a gristmill, the junction depot, the Goodnow Library as well as residences.<sup>6</sup> Later, around 1910, the C.O. Parmenter Gristmill and Sawmill were located on Hop Brook in this area.

In 1923, Henry Ford began buying up land in Sudbury, around and including the Wayside Inn (see the Wayside Watershed section for more information). He rescued the Inn from financial peril, refurbished it and created a historical village in the area. Part of Ford's later plan was to purchase the land in and around the mills on the lower Hop Brook, in South Sudbury. He wanted to increase the water-power of the Parmenter Gristmill dam such that it could be a source of hydro-electric power, and then build one of his "village industries" to make Ford auto parts. Gradually, he purchased every parcel of land bordering the brook, except one: Guiseppi Cavicchio refused to sell his land. Ford eventually gave up the plan and Sudbury remained a quiet, primarily agricultural Town.<sup>7</sup>

#### King Philip Historic District

This area was one of the sites in the Indian Wars of 1676, and was where Captain Samuel Wadsworth and his troop were killed in an ambush and later buried in the Wadsworth Cemetery. The Wadsworth Monument was erected in 1852 in memory of the gallant men who fought the Battle of Green Hill and the monument appears on the Town Seal of Sudbury. Also in the King Phillip's Historic District is the Goodnow Library, which is included in the National Register of Historic Places. There are many homes of 17th and 18th century construction, including the Goulding House, Sudbury's oldest existing home, 1720.<sup>8</sup>

The King Philip War: "On April 21, 1676, Sudbury, Lancaster, and Marlborough, were all burned to the ground by marauding Native Americans, under the command of the Wampanoag Chief, King Philip. A feeling of impending crisis sent the Sudbury settlers to their six garrison houses. By 6:00 a.m. that fateful day, a force of 1,000 to 1,500 Native Americans under King Philip infiltrated the woods, burned the isolated farmhouses, and attacked the garrisons. None of the garrison houses remain today, but the foundation of the Haynes Garrison House can be seen on the adjacent Town-owned parcel. It was to the Haynes Garrison House that the two Concord survivors of the Native American massacre at the Four-Arch Bridge (at the Sudbury River in Wayland) fled for refuge. Here, the

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<sup>5</sup> *Images of America: Sudbury*, pg 10

<sup>6</sup> *Sudbury Reconnaissance Report*, pg 2

<sup>7</sup> Scott, pg 110 & 130

<sup>8</sup> Town of Sudbury web site:

<http://sudbury.ma.us/departments/historicdistricts/committees/custom/historicdistricts.asp>

defenders showed such courage and fierce determination to defend their homes, that by 1:00 p.m., the Native Americans gave up and faded into the woods. Perhaps the increasing frequency of musket fire from the direction of Green Hill drew the discouraged Native Americans over Goodman Hill to the main engagement. There, King Philip and his warriors finally overwhelmed the colonials that afternoon, but failed to consolidate their victory and began the slow descent into final defeat of the Native American peoples in southern New England.”<sup>9</sup>

### Goodman Hill

A chief dignitary among the Sudbury Indians was named Cato. He lived peaceably with the settlers and after hearing the preacher in the meeting house, became a Christian. He then became known as Goodman. His wigwam was on the hill known today as Goodman Hill. The Sudbury settlers treated him respectfully and purchased some of his land (rather than just taking it); the deed is filed in the Suffolk Registry of Deeds in Boston.<sup>10</sup> Goodman Hill drains to three watersheds: Great Meadow, Frost Farm and Goodnow.

### **Issues and Opportunities**

Hop Brook, which is a prominent part of the Goodnow Watershed, flows from north to south through the eastern third of the Watershed. Much of the brook and its millponds are choked with invasive weeds due to the high nutrient level in the effluent from the East Marlborough Wastewater Treatment facility near the headwaters of Hop Brook. The decomposing algae and other weeds create offensive odors in the summer. The East Marlborough Wastewater Treatment Facility has begun updates in its facilities to eliminate the flow of nutrients into Hop Brook and other work has begun upstream from the Goodnow Watershed, such as harvesting the water chestnuts on Carding Millpond and Stearns Millpond, to help clean up the brook and its millponds in an effort to create a better environment for the fish and wildlife and a better recreational and natural setting for humans.

The *Massachusetts Year 2012 Integrated List of Waters* Report lists the Hop Brook system as having impairment caused by: dissolved oxygen saturation, excess algal growth, dissolved oxygen, and phosphorus.<sup>11</sup>

### **Recreation**

Blanford Pond is a good fishing pond and has largemouth bass, yellow perch and bullheads. Several areas of Dudley Brook have been said to be good fishing.

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<sup>9</sup> Town of Sudbury web site:

<http://sudbury.ma.us/departments/conservation/services/custom/landspages/kingp.asp>.

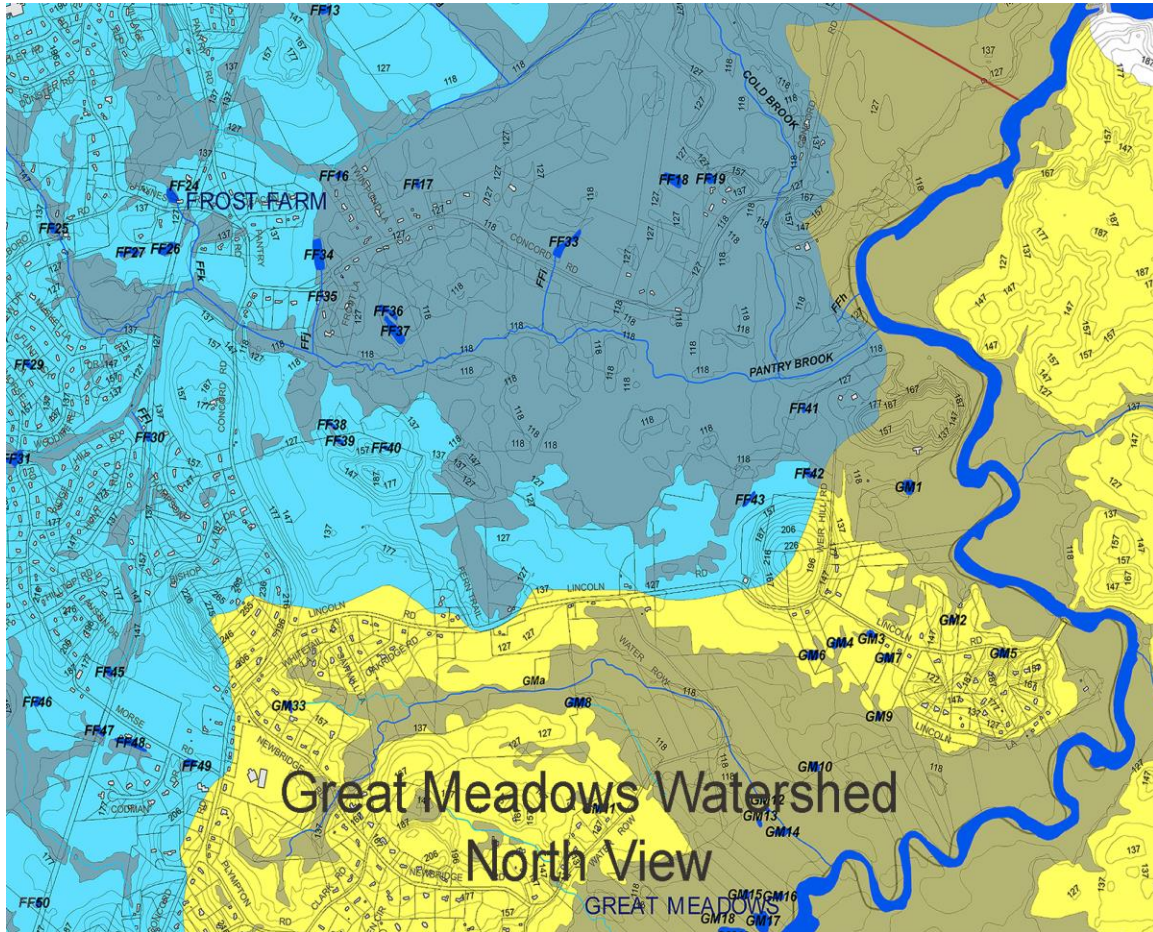
<sup>10</sup> *A Brief History of the Towne of Sudbury in Massachusetts, 1639-1939*, pg 5-6.

<sup>11</sup> *Massachusetts Year 2012 Integrated List of Waters*.

# Great Meadows Watershed

## Overview

The Great Meadows Watershed may be the most significant watershed in Sudbury with respect to history, volume of water and recreational use. Approximately half of the Great Meadows Watershed lies within Sudbury, while most of the other half lies within Wayland. The Sudbury River, the most significant water body within this watershed, forms a portion of Sudbury's eastern border, separating Sudbury from Wayland.



## History

### Pre-History

The Concord River Basin owes its current appearance to glacial activity about 10,000 years ago during the Pleistocene epoch, when Glacial Lake Assabet and Glacial Lake Sudbury formed as a vast ice sheet covering much of North America slowly melted. The basin is characterized by many glacial features including kames, kettle holes, drumlins, and thick deposits of stratified drift. Within the basin such features include Fairhaven Bay, a large kettle hole pond on the Sudbury River, several drumlins which rise abruptly from the generally flat topography, and a buried valley aquifer which runs beneath the Sudbury and Concord Rivers.

### Pre-Colonial Native American History

Extensive evidence has been found of earlier Native American activities in this area, some dating back thousands of years. An example of this is the discovery of grinding stones generally in or near Native American villages. One such stone artifact is located at the corner of Green Hill Road and Singletary Lane. In the 1600s, Green and Goodman's Hills were covered with wigwams made of elm bark. This area was where the Native Americans planted their gardens and did most of their hunting. They spent the winter months at campsites where the headquarters of the Great Meadow National Wildlife Refuge stands, reportedly trapping salmon on the river. There are numerous rich archaeological sites along the streams of this region.

### Colonial History

Several areas of significant colonial history stand within the Great Meadows Watershed. One such site is the Haynes Garrison, which was attacked by Indians on April 21, 1676. During the attack the Indians tried to set the building afire by rolling a wagon full of flax down the hill behind it. During colonial times Garrison houses were fortified and people came to them for refuge when the Indians attacked. Sudbury had several, including the Goodnow Garrison near Buddy Dog and the Parmenter near the Wayside Inn.

Another notable site of colonial history within this watershed is The Causeway and Four-Arch Bridge located today adjacent to the Wayland Country Club and the Sudbury River. At this site several Concord men were ambushed and killed by King Philip's braves on April 21, 1676. The bridge was the first with four arches in Middlesex County. This bridge actually replaced an even older, wooden one. The bridge marks the furthest recorded point of advance by the Indians following the colonist's arrival.

Colonial settlers were drawn to the Great Meadows area for many of the same reasons that the Native Americans before them were drawn. The area provided an abundant food source and useful means of travel.

The river also provided the colonists with a protective buffer between themselves and the "wild untamed" regions to the west. The Great Meadows region, as the name implies, specifically provided the settlers with an abundance of natural river meadow hay with which to feed their livestock. The region is extremely wide and flat, with the river channel winding back and forth through the fields. The low, wide expanse of land around this area of the river provided flooding of the area each spring. This seasonal flooding was a great source of nutrient exchange between the river and the fields. In essence the floods provided a free source of fertilizer to the soil every year. This cycle still goes on today. Although people no longer depend on this cycle for their livelihood, the plants and animals of the area are still provided with this tremendous annual nutrient exchange.

### Great Meadows Acquisition

In April 1999 Congress designated 29 miles of the Sudbury Assabet and Concord Rivers as Wild and Scenic (please see <http://www.sudbury-assabet-concord.org/> for more information). The full area of designation includes the 14.9-mile segment of the Sudbury

River beginning at the Danforth Street Bridge in Framingham, downstream to the Route 2 Bridge in Concord, the 1.7-mile segment of the Sudbury River from the Route 2 Bridge downstream to its confluence with the Assabet River at Egg Rock, the 4.4-mile segment of the Assabet River beginning 1,000 feet downstream from the Damon Mill Dam in the Town of Concord, to its confluence with the Sudbury River at Egg Rock in Concord and the 8-mile segment of the Concord River from Egg Rock at the confluence of the Sudbury and Assabet Rivers downstream to the Route 3 Bridge in the Town of Billerica. The Sudbury Assabet and Concord river system is one of only 7 designated in New England and one of two Massachusetts. The beauty and importance of this area was recognized and described by many great writers from over a century ago. Emerson, Hawthorne, and Thoreau all recognized the cultural and ecologic significance of these watersheds. Now the federal government has recognized the importance and it's up to the individual local governments and the areas conscientious citizens to see that this natural and historic beauty is preserved.

### **Issues and Opportunities**

The number one water quality issue is the dangerously high mercury content of the soil, plant and animal life in the area. Between 1917 and 1978, industrial operations in an area of Ashland (i.e., Nyanza Superfund site) contaminated surface and ground water, soils, and wetlands. At the direction of the U.S. Environmental Protection Agency (EPA) remediation has occurred. Settlement funds will be used to fund eleven remediation projects in the watershed. These projects include the creation of boardwalks, a viewing platform, and provide canoes and kayaks for the public at the Great Meadows National Wildlife Refuge.

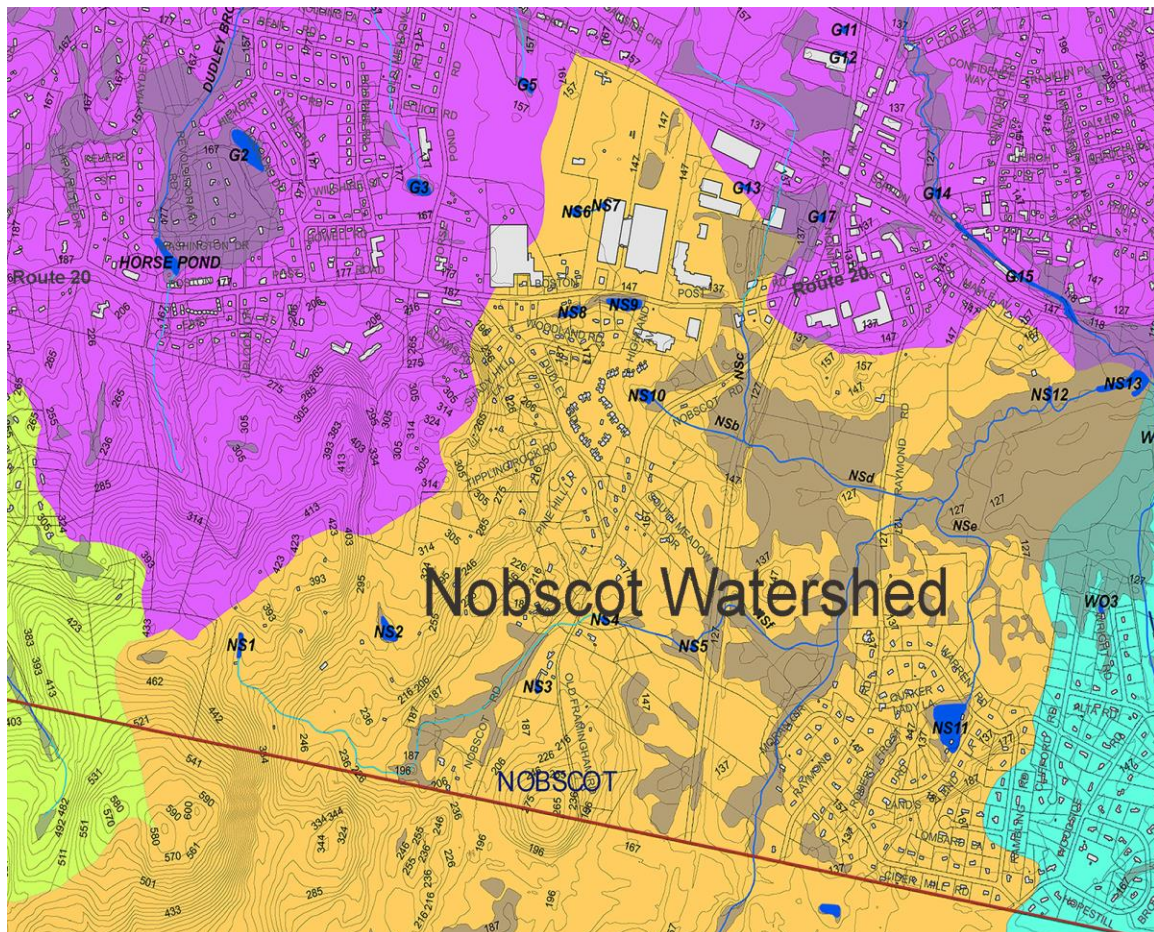
### **Recreation**

The Sudbury River provides a range of recreational opportunities to those within the greater Boston area. The river offers occasions for hiking, birding, fishing and boating. It is also a great educational resource to teach students about ecology of river systems. The river flows very slowly in this section, so it provides a nice opportunity for beginners to experience a river habitat and all of its ecological offerings. Boating activity includes the use of canoes, kayaks, row boats and small motor boats. There is currently a boat ramp at the intersection of Route 20 and the Sudbury River. There will also be the boardwalks, viewing platforms, and canoes and kayaks for the public at the Great Meadows National Wildlife Refuge. For hunting activity there is bow hunting for deer and limited duck hunting. For wildlife observation, there are periodic bird walks led by experts and people are welcome to view flora and fauna on their own at the Great Meadows National Wildlife Refuge when it is open to the public.

## Nobscot Watershed

### Overview

The Nobscot watershed is located on the southern border of the Town of Sudbury. It spans an area north from the Framingham town line, south including the Raytheon property and behind 1776 Plaza, east from the summit of Nobscot Hill and the Weisblatt conservation land, and west including the confluence of Allowance and Hop brooks and the un-named pond on Warren Road. The watershed continues to the south into the Town of Framingham. Allowance Brook enters Sudbury flowing north from Framingham and is the drainage point of this watershed where it joins with Hop Brook. Pond NS2 also known as Nupsee or Nupsi Pond is a large vernal pool in the main part of the Nobscot Scout Reservation and has no stream outlet. Pond NS11 (the largest in this watershed) on Warren Road drains via NSe north into Allowance Brook, the northeast side of Nobscot Hill drains via NSf to Allowance with several un-named ponds and vernal pools along the way, and the area north and south of Route 20 at Raytheon drains via NSd to Allowance also with several small ponds. There are two Town Wells, one on the abandoned Conrail bed and one on Raymond Road. Conservation land in the watershed includes: the Nobscot Scout Reservation, the Conrail bed, the SVT Lyons-Cutler Reservation and several Sudbury Conservation properties.





## **History**

When the English settlers came to Sudbury, most of the native population who had lived in the area perished from disease. For example, in 1633 a smallpox epidemic was recorded in the early history of Sudbury. Prior to this time, very little is known for sure of the history of native peoples who lived near Nobscot Hill although it is quite certain from artifacts discovered in the area that they were indeed here.

The land around Nobscot was thought of as wilderness by the English and was not settled in the beginning although it was known to have wildlife and fine timber. A native man named Tantamous (known as Jethro by the settlers) and his family lived on the side of Nobscot at the time of King Phillip's War. In the 1650's when new land grants were being surveyed and subdivided, it was decided to lay a road 30 rods wide (495 feet) north-south through the land. One of the last remnants of this road remains as a major trail/woods road in the Nobscot Scout Reservation. At the time of the Revolution, the home and farmland of John Nixon was on the flanks of Nobscot Hill. One of the small streams flowed through the house by design. Not far from the Nixon home along 30 Rod Road was a "Pest House" where those with small pox came to die. These cellar holes and graves are still visible here. John Nixon was a Captain of the Sudbury Minutemen and fought at Lexington and Concord and Bunker Hill. Nixon was later promoted to General and fought in the Saratoga Campaign. For many centuries, the Nobscot watershed has supported wildlife, forests, growing crops and grazing animals. It's waters have played a key role in the lives of many people who have lived on or near its land and continues to do so.

## **Issues and Opportunities**

There are several wells for town water supply in the watershed. It is important that development in this area does not impact the ground water or wildlife habitat. There are opportunities to education residents of the open spaces where they can hike and bird watch.

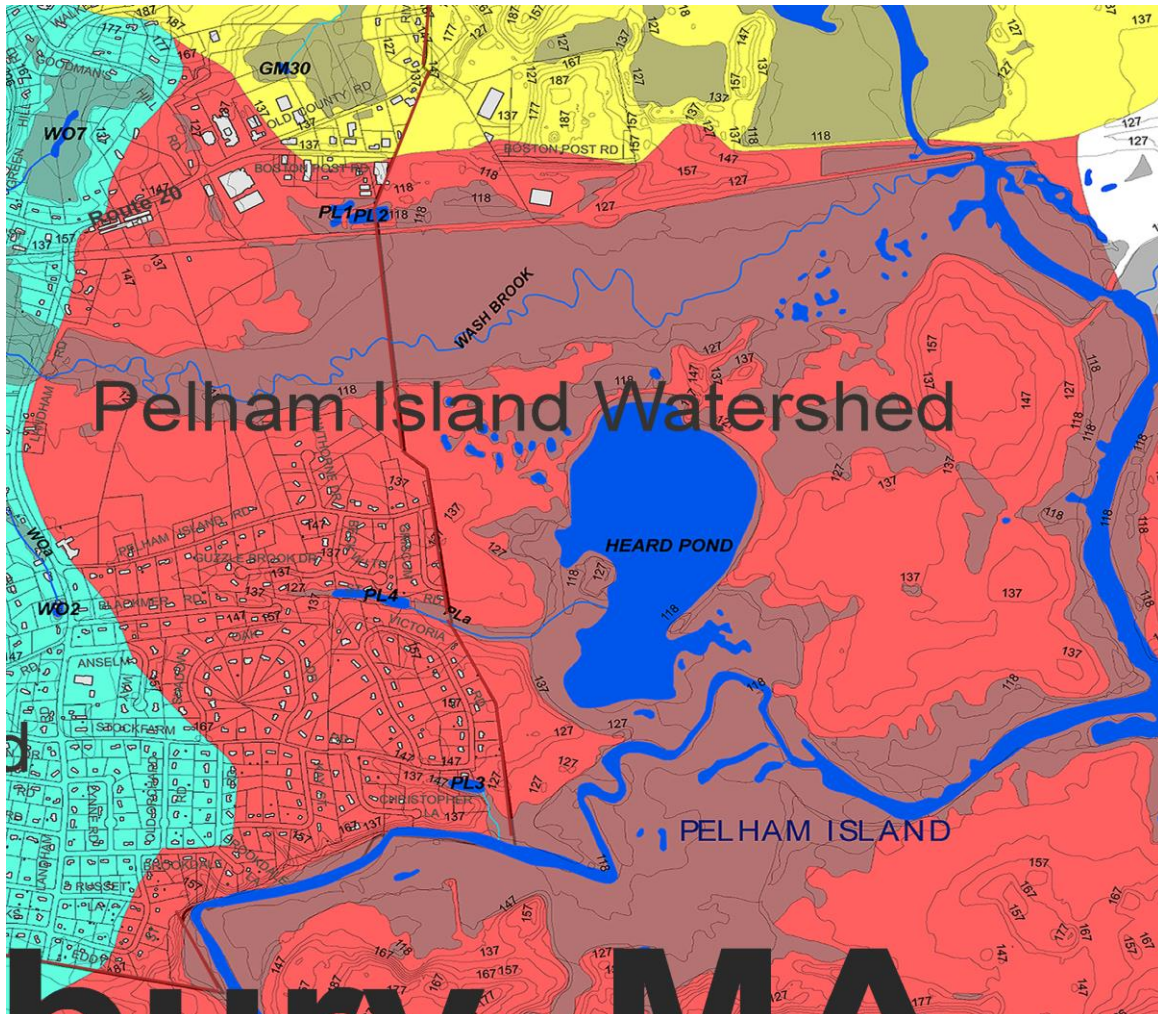
## **Recreation**

The Lyons-Cutler Reservation, which is owned by the SVT, is located along the Allowance Brook adjacent to a Sudbury Water District parcel and lands owned by the Town of Sudbury. The contiguous open space totals more than 340 acres, and is bisected a three mile trail system that is open to the public.

## *Pelham Island Watershed*

### **Overview**

Pelham Island is part of the Great Meadows National Wildlife Refuge. Pelham Island Road, located at the intersection of Routes 20, 27, and 126 in Wayland, MA is winding and narrow. Its width ranges from 16 to 20 feet wide. The small bridge connecting Wayland to the island can accommodate one car at a time in either direction. On the south side, the road is bounded by Heard's Pond and the northern edge by wetlands of the Great Meadows National Wildlife Refuge.



### **History**

The island's first inhabitants were the Nipmucks of the Eastern Woodlands or Algonquin tribe. Pelham Island was a separate grant given to Herbert Pelham, who arrived in America from England in 1638. On Sept. 4, 1639, he received a grant for the eponymous island along with 400 acres, in what is now Wayland, Massachusetts. Pelham's profession was public service, and in 1643 he was named the first treasurer of Harvard College. He returned to England in 1649, and died on July 1, 1673. In his will, dated Jan. 1, 1672, he bequeathed his land, then part of Sudbury, to his son, Edward. In 1711, the

Pelhams, who were residing in Newport, Rhode Island by then, sold "Pelham's Island" to Isaac Hunt and Samuel Stone, Jr. They, in turn, sold part of it to Jonathan and George Read in November, 1711.

As the Heard family of Wayland gained prominence in the Town, Pelham Pond was renamed Heard's Pond. Pelham Island became Heard's Island, though it later reverted to Pelham. In 1970, the Sudbury Valley Trustees purchased the land to keep it from development, and sold it to Wayland 1973. It is managed by the Wayland Conservation Commission and designated Heard Farm Conservation Area.

### **Issues and Opportunities**

Like many other area waterways, Heard Pond is infested with water chestnuts, an invasive, inedible, weed species. It is a prolific weed from Eurasia, which a few years ago completely covered many parts of the pond causing hypoxia, or oxygen depletion. In 2003, three aquatic weed harvesters pulled 1.2 million pounds of the weeds out of the pond. In 2010, harvesting yielded 427 pounds.

### **Recreation**

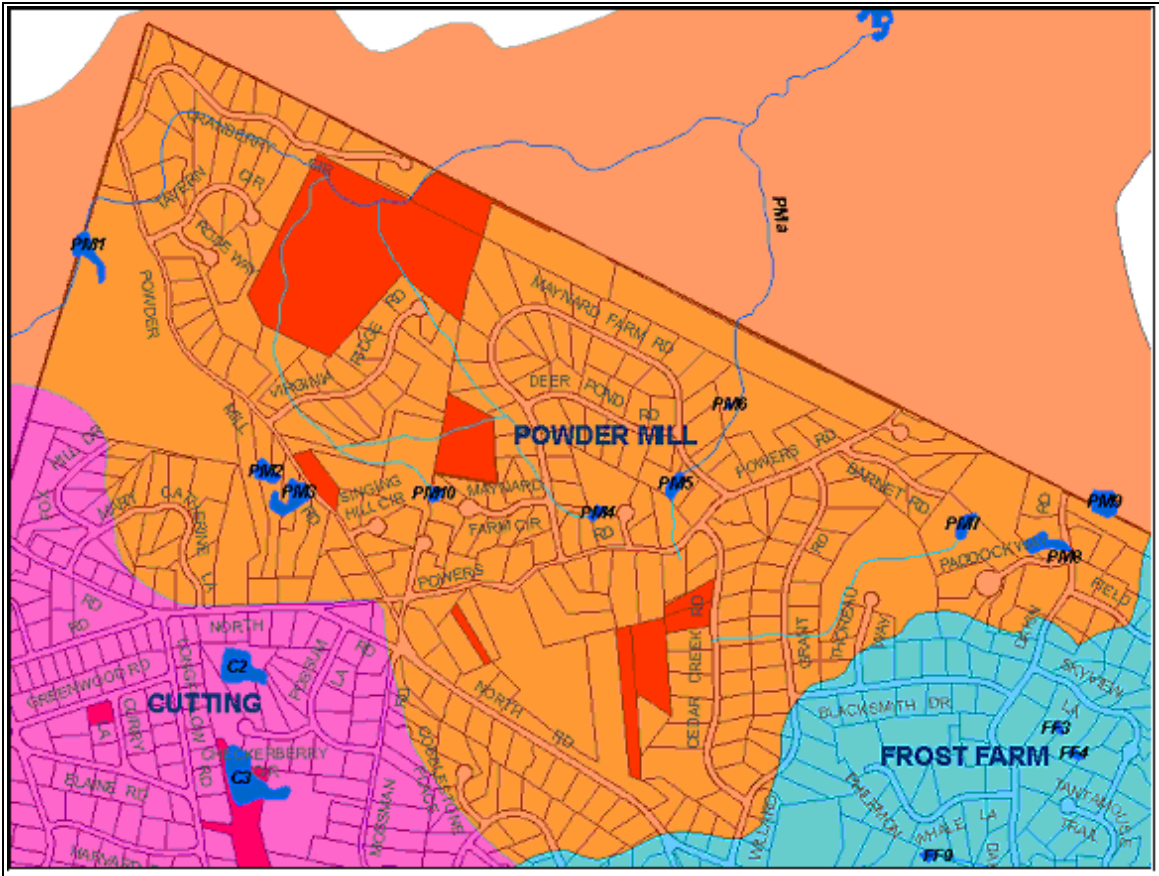
The site's marshlands offer some of New England's best migratory bird sighting areas. Species include: Great Blue Heron, Red-tailed Hawk, Merlin, Mourning Dove, Belted Kingfisher, Downy Woodpecker, North Flicker, Blue Jay, American Crow, Black-capped Chickadee, Whitebreasted Nuthatch, Eastern Bluebird, American Robin, Great Catbird, Northern Mockingbird, Song Sparrow, Swamp Sparrow, American Goldfinch, Muted Swan, Wood Duck, Mallard, North Harrier, Tree Swallow, Northern Cardinal, Red-winged Blackbird and Common Grackle.

Diverse species of butterflies, amphibians, and plants also inhabit this area. Native water lilies line the shoreline and Heard Pond has a regional reputation for great fishing.

## *Powder Mill Watershed*

### **Overview**

Few ponds or waterways exist in the Powder Mill Watershed. Perhaps the most significant is Second Division Brook because it traverses publicly owned land and flows out to the Assabet River.



### **History**

There is little notable history to be found on the Powder Mill Watershed area of Sudbury. The watershed's name, taken from Powder Mill Road, probably refers to the powder mills in neighboring Acton. In the 19<sup>th</sup> century, powder mills were established along the Assabet River in Acton from Maynard to Concord and flourished for more than a century prospering from both world wars. The powder manufacturing process was dangerous and explosions were a frequent hazard. Henry David Thoreau wrote about such an explosion, in which four men were killed, in his diary in 1853. Interestingly, powder mill structures were built with solid foundations and frames but with intentionally light wall boards and roofing so that an explosion would blow them off and minimize damage to the framework and equipment.

### **Issues and Opportunities**

Some of the small privately owned ponds have drainage easements, indicating their importance in flood control and storm damage prevention. Second Division Brook, where it passes through the north-westernmost corner of Sudbury, is an area identified by a 1978 wetlands evaluation report to be of highest value to the Town's water supply. Powder Mill Watershed is also among the areas having high value for wildlife. Because Second Division Brook appears to be heavily polluted, both it and Pond PM1, which flows into it, should be targeted for further water quality assessment.

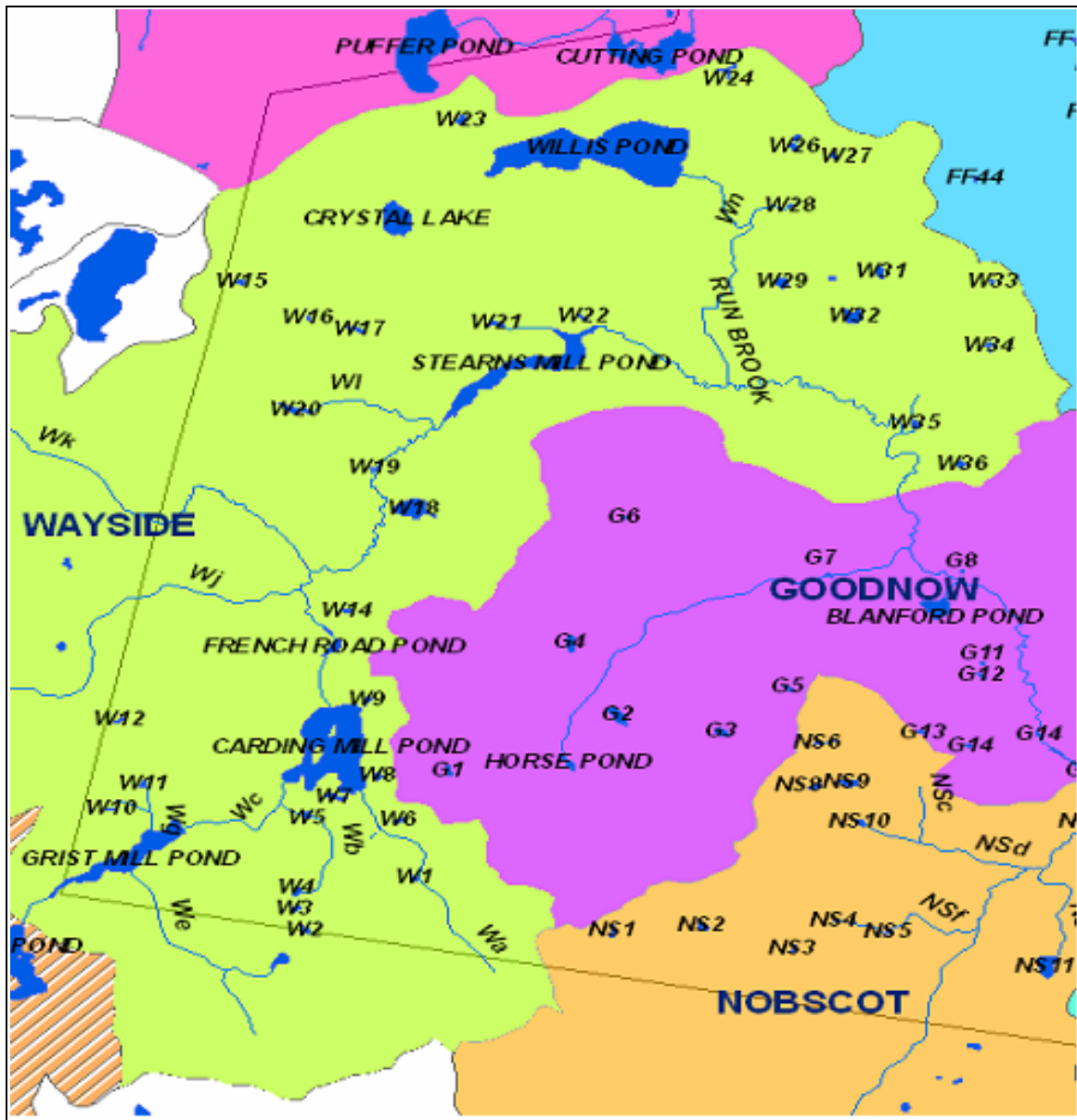
### **Recreation**

There are no available recreational uses for the ponds and waterways in the Powder Mill Watershed due to the lack of water bodies of significant size and the fact that all water features are located on private property.

## Wayside Watershed

### Overview

Much of Hop Brook, which flows 9.4 miles through Sudbury and discharges into the Sudbury River, and three of Hop Brook's four largest mill ponds, Grist Mill Pond, Carding Mill Pond and Stearns Mill Pond, are within the Wayside Watershed, which straddles Marlborough and Sudbury. Other prominent ponds in this watershed are French Road Pond, Duck Pond in the Town-owned Hop Brook Reservation, Crystal Lake, and Willis Pond. The major tributaries to Hop Brook are Trout Brook and Cranberry Brook, both within SVT Memorial Forest reservation, and Run Brook, with its headwaters at Willis Pond.



Hop Brook and its mill ponds provide significant wetland resources throughout the watershed. Fortunately, much of Hop Brook runs through protected conservation areas. The mill ponds have been identified as an important waterfowl area in Sudbury. Beginning at the southeastern tip of the watershed, Hop Brook enters Sudbury from Marlborough flowing through Grist Mill Pond Reservation, a SVT property along Boston Post Road. The Brook enters the Grist Mill Pond, flanked by the SVT reservation to the south and the Wayside Inn's Grist Mill to the west. Hop Brook then winds through cattails and meadows through the Wayside Inn property. Baltimore orioles can be seen nesting in willows along the brook's banks, until it flows into Carding Mill Pond. To the west of the pond is a long, narrow strip of meadow owned by the Town. An active beaver lodge can be found on the banks of the pond in this area along Dutton Road. An island in the pond is the host to nesting snapping turtles, Great Blue Herons, and mute swans. Next to the old Carding Mill House on the northern end of the pond, Hop Brook spills over its largest dam, flows along Dutton Road and under French Road then enters the small French Road Pond before crossing Dutton Road and winding through SVT Memorial Forest. More details of these areas are provided below.

### Memorial Forest

The Memorial Forest is described on SVT web site as follows:

Historically known as "the Desert" due to the prevalence of well-drained sandy soils, [this area offers] unfragmented forest, wetlands and waterways to support a variety of birds and mammals. Scarlet Tanagers, Hermit Thrushes and Ovenbirds prefer the deep woods. Ruffed Grouse are plentiful; they roost in conifers but need water nearby, just the combination found here. Great Blue Herons nest along both brooks.

Deer, coyote, muskrat, raccoon, and a variety of small mammals are common. Fisher have been seen and beaver colonies have left their mark in the form of rich beaver meadows. The size of the parcel, and consequently its value for wildlife, is significantly enhanced by its proximity to the Assabet River National Wildlife Refuge.

The sandy soils, originally deposited on the bottom of ancient Lake Sudbury as the glacier retreated north, now support a Pitch pine and Scrub oak forest unusual in this region. These areas may look harsh and dry to us, but provide abundant food for wildlife. Gray squirrels prefer the acorns, Red squirrels the pinecones, and the Blue Jays aren't fussy. Elsewhere, wildlife, and perhaps humans, too, can enjoy and understory of Lowbush blueberry and huckleberry.

Henry Ford purchased much of the land along Sudbury's western boundary in the 1930s. He sold Memorial Forest to the General Federation of Women's Clubs of Massachusetts in 1950 when he abandoned his plans for the area. In the 1970s and 1980s, the area became a dumping ground for debris and stolen cars. Off-road vehicles damaged the land and illegal hunting and shooting deterred use of the land for quiet recreation. SVT cleaned up the land and acquired the forest in 1999.

### Hop Brook Marsh Reservation

From the Memorial Forest, Hop Brook sinuously winds its way through Hop Brook Marsh Reservation, an 80-acre Town-owned property. This land was purchased by the Town from the Sudbury Road and Gun Club in 1967. The property consists of dense Red maple and shrub swamps, floodplain marshes, vernal pools, a meadow, oak-pine forest,

and the shallow Duck Pond created by damming a small tributary to Hop Brook. Two cold-water streams, Trout and Cranberry Brooks, flow into Hop Brook. Hop Brook then flows through floodplains until it enters Stearns Mill Pond. Stearns Mill Pond is surrounded by private homes and Dutton Road to its east. Eventually, Hop Brook reaches the Town's Haynes Meadow Conservation Area.

### Haynes Meadow Conservation Area

The Sudbury Conservation Commission's web site describes Haynes Meadow Conservation Area as follows:

This 37 acre parcel contains open marshes, wooded swamps, and forested geologic formations called eskers. Hop Brook flows through the property from the Water District property to the north of the site south to Peakham Road. Spectacular views of Hop Brook can be seen from the trails along the eskers. Hiking and cross country ski trails provide connections to the adjacent Curtis Middle School to the west and through the Sudbury Valley Trustees owned 35 acre Gray Reservation (open to the public) to the northeast.

### Gray Reservation

To the east side of Haynes Meadow along Old Lancaster and Hudson Roads is SVTs' Gray Reservation. This land was a gift to SVT from Mrs. Stephen Gray in 1976. Mr. Gray created a pond on the property and built a cabin near the ponds dam. A portion of the cabins fireplace remains. White pine and mixed oak woods dominate this property. There are also flood plain marshes and a red maple swamp. In late spring and early summer, many wildflowers boom, including shinleaf, pink lady's slippers, and wild oats. Also common are evergreen partridgeberry, wintergreen, pipsissewa, club mosses, and ferns. Marsh marigold, forget-me-not, and jewelweed grow near the banks of the ponds and streams.

## **History**

### Hop Brook – Ancient History

As glaciers repeatedly advanced and retreated across New England, they shaped our local landscape. Most striking is the 40-foot high ice contact face that rises just south of Hop Brook. A trail winds through oaks at the top, providing dramatic views over the brook's flood plain far below. The slope marks one edge of a kame plain underlying Pratt's Mill Road and the Curtis Middle School property. The flat-topped plain was built up with layers of well-stratified material deposited by glacial melt-water. Kettle holes pit the plain, formed as sand and gravel washed and settled around chunks of ice left behind by the glacier. A steep-sided depression remained after the ice melted. The bottom of the large glacial pit behind Curtis Middle School harbors a sphagnum bog. Kame plains are frequently found in association with kame terraces, separated from them by a narrow trench or swampy moat, in this case Hop Brook and its flood plain. Saxony and Normandy Drives occupy the terrace, formed by stratified deposits laid down between a wasting tongue of ice and a valley wall. Eskers or ice-channel fillings wind through these properties, long, narrow ridges of stratified drift deposited by rivers that ran through tunnels within the glacier or through ice-walled open channels on its surface. Look for a large boulder that perches near the trail winding along an esker top in the northeast corner



of the Gray Reservation; it's a glacial erratic carried along by the glacier and then dropped.

Human use of the land has been determined in part by the glaciers. Eskers were utilized as natural aids to create both the pond on the Gray Reservation and the pond that formerly filled Hop Brook's flood plain, thanks to a stone dam at the site of the current bridge over the brook. Here and there along the trails, "borrow pits" mark locations where sand and gravel have been removed for various projects over the years. Gravel deposits also led the Sudbury Water District to this area in its search for well sites; water moves quickly and cleanly through gravel deposits.

The land's geological underpinnings help to determine what grows where. Vegetation and terrain together provide a variety of wildlife habitat. The dry acid woodlands on the eskers and kame terraces include a mix of white pine and oak on south-facing slopes while pockets of hemlock show up on cooler northerly slopes. Due to thin gravelly soils, shrubs are scarce - just a few huckleberries and low-bush blueberries. Wild flowers are common in late spring and early summer, including shinleaf, pink lady slippers, and wild oats. Evergreen partridgeberry, wintergreen, and pipsissewa may be identified in winter as well. Ghostly white Indian pipes sprout in the shady woods; because they gather their nutrients from nearby pine roots, they have no need for chlorophyll. Ancient club mosses and ferns carpet the area. Water encourages other plant life. Marsh marigold, forget-me-not, and jewel weed grow near the ponds and streams. Swamp azalea scents the air from time to time during a spring walk.

Animal life ranges from yellow-spotted salamanders in the vernal pool tucked behind an esker on the Gray Reservation, to deer. Birds sighted on the property include northern oriole, scarlet tanager, blue jays, chickadees, titmice, and crows, sometimes mobbing the great horned owl that's been known to hang out here. Marsh and ponds attract mallards and great blue heron. The tall trees on the Gray Reservation have in the past attracted a shy but huge exotic species, the pileated woodpecker of "Woody Woodpecker" fame. Other exotic, introduced species are less welcome, like European buckthorn, a pesky and stubborn shrub that will take over the woods if you let it, just as purple loosestrife has filled our wetlands.

### Hop Brook – Colonial Era

This section is reprinted from the Hop Brook Protection Association's web site:

Hop Brook, a tributary of the much larger Sudbury River, played a crucial role in the development of the Town of Sudbury from its very early settlement in 1638. From that time and into the 18th century, Sudbury was on the perimeter of the western expansion of the Massachusetts Bay Colony. The area was a wilderness isolated from civilization because of the slowness of horse-drawn travel and also because of the formidable spring flooding of the Sudbury River.

The inhabitants had to become self-sufficient both to survive and to develop and prosper. Local establishment of mills for the grinding of grains, sawing and planing of wood and processing (falling) of cloth was essential

The Sudbury River was not suitable for the siting of mills because of the broad wet meadows that surround it. A major tributary, Hop Brook, that originates on Sudbury's western border with Marlborough and winds its way through more upland areas was chosen. From 1656 when the Thomas and Peter Noyes' mill was first chartered until today, at least seven mill sites, under numerous proprietors, were established along the 9.4 miles of Hop Brook. The last of the mills operated on Stearns Mill Pond until the middle of the 20th century. All the mill buildings on Hop Brook are gone, but if one looks carefully, the old mill sites may be found by their remaining dams, spillways and stonework. Old photographs, deeds and written records still survive.

Supplying waterpower for operation of mills was a major function of Hop Brook for several centuries. Another indispensable function of the brook was undoubtedly the supply of water to the farming population, their stock and crops. This contributed to making Sudbury one of the largest Towns in the area before and during revolutionary times.

There are also indications that, for undetermined ages, the Native American population used fishing weirs at numerous places on Hop Brook before the white man arrived. Such is certainly evidence of abundant fish and excellent water quality in earlier times.

Today, from its headwaters in Marlborough, Hop Brook flows through Hager Pond in Marlborough, then into Grist Mill Pond at the Wayside Inn in Sudbury and wends its way through the grounds of the Wayside Inn. The brook complements the irreplaceable charm of a well-kept early 18th century hostelry once used as a stagecoach stop on the Boston Post Road.

### Hop Brook - Mills and Dams, Henry Ford, and the Wayside Inn

This section was initially prepared by Rich Davison, who received valuable input from Rich Gnatowski of the Wayside Inn and Lee Swanson of the Sudbury Historical Society.

On Hop Brook alone, there were at least seven dams and mills. Listed from 'upstream' to 'downstream', the ponds, dams, and mills began with what is now Hager Pond in Marlborough (near the headwaters of Hop Brook). William Hager built and operated a sawmill at the dam site on Hager Pond in the early 1800s.

Next is the How(e) Mill Pond (today the Grist Mill Pond) in Sudbury on what is now the Wayside Inn property. The dam and mill were built in 1723-1724. An earthen dam made of rocks and earth was reinforced with a concrete spine and raised two feet by Henry Ford in the 1930s. The original mill was a grist mill. The mill then produced nails and tacks and later milled plaster undoubtedly from a local limestone kiln. Ford completed construction of the current Grist Mill in 1929 and the old mill buildings were demolished. Prior to completing the current Grist Mill, in 1927, in an area south of Route 20 near Nobscot Mountain, Ford commenced the construction of what is known today at Ford's Folly, a 400-foot-long stone dam. Designed as a reservoir intended to serve as a supply for drinking water and fire protection for the Wayside Inn and the boys' schools Ford has established for Wayside Inn workers during his ownership, it took many years to complete. Ford painstakingly followed historical construction methods also used for the Grist Mill, employing human, horse, and oxen power. Other than a few tractors, he rejected the use of modern machinery to cut and haul large stones and gravel. Unfortunately, the dam never held water because its small feeding brook provided insufficient water volume and the ground was too porous to hold any water that could be collected. The dam itself, however, still stands.

The dam off Dutton Road, which forms Carding Mill Pond, was also built by Ford in the 1930s. It is believed that a smaller natural pond along the stream existed where Carding Mill Pond is today. The next dam and grist mill was the Dutton Mill. It was located on what is now Dutton Road and created the pond, today known as the French Road Pond, at the intersection of Dutton and French Roads. It was built by William Knight in the early 1800s and was sold to Solomon Dutton. An older mill and dam dated to the late 1600s was the next downstream and was located north on Dutton Road at the north end of Stearns Mill Pond. It was originally a saw mill and a grist mill was later added. This mill operated during World War II. The mill building was demolished in the late 1940s or early 1950s. From here, Hop Brook turns east under Dutton Road and flows toward Peakham Road. Two dams were on Hop Brook just to the west of Peakham Road. One dam, the remains of which can still be seen today, created what was known as Connors Pond. The dam and the pond were washed out in the mid-1950s by a hurricane. Near this site was the Willis Mill which sawed lumber for approximately 50 years until it burned in 1898.

The Haynes Meadow Conservation Area was once the site of the Johnson Lumber Company lodge. This lodge, built in 1920, was used as a recreational center for the lumber company employees. The lodge is currently rented and is not open to the public. The final dam on Hop Brook was located off Station Road just to the west of Boston Post Road, in the Goodnow watershed. Although the mill ponds along Hop Brook are manmade, they now link important wetland systems.

### Willis Pond - Babe Ruth

In the 1600s, Willis Pond became part of Sudbury as part of the third ("Two Mile") land grant in 1649 by the Court of the Massachusetts Colony, being purchased from the Indians for twelve pounds. It appears from an old map that it may originally have been called Great Pond.

Willis Pond and Willis Hill are named after the Willis family who moved to the northwest part of Sudbury from Dedham, around the turn of the 18th century. In several old records and maps, it is referred to as Willis' Pond, probably because Josiah Willis owned some or all of the land surrounding the pond. Some of the abutting land appears to have been sold also to Deacon Jonathan Rice and possibly also Captain David Haynes.

It appears from an old map that in the 19th century, the pond left the Willis family and became property of L. Fountain. Another Willis Pond appears on one map at the easterly end of Gray's Reservation on Old Lancaster and Peakham roads on the land owned by another member of the Willis family who owned a saw and grist mill, but records indicate it was really named Willis Mill Pond.

In 1914, Babe Ruth was sold to the Boston Red Sox and on July 11, he made his debut as a major leaguer in Fenway Park pitching against the Cleveland Indians.

Babe had a passion for hunting and fishing and discovered Sudbury's rural charm while visiting a friend's camp on Willis Pond, supposedly on Butler Road. He fell in love with the area, and rented several local camps as vacation retreats. A story tells of how he became frustrated while playing the piano at one of the camps, and rolled it down the hill and into the pond. For years until the Red Sox finally won the World Series in 2004, it was believed by some that the curse of the Bambino could be resolved by locating the piano, removing it from the bottom of Willis Pond and restoring it. Despite many efforts by frustrated divers, the piano has never been found. As Babe's career began to blossom and his salary increased in which by 1919 he was making \$10,000 per year, and he and Helen were able to buy the Perry Farm on Dutton Road, next door to Henry Ford's house across the road from Stearns Mill Pond.

During the 1950s and 1960s, story has it that locals had demolition derbies on the ice during the winter, and left the smashed up cars on the ice to fall in after the ice melted.

### **Issues and Opportunities**

Three of the Sudbury Water District's public drinking water wells, W3, W8, and W10, are located within the Wayside Watershed at the end of East Street. The wells are in close proximity to Hop Brook and abut the Town's 37-acre Haynes Meadow Conservation Area.

The three most significant environmentally-impaired ponds in Sudbury are Grist Mill, Carding Mill, and Stearns Mill Ponds, each fed by Hop Brook. The Marlborough Easterly Wastewater Treatment Plant discharges its effluent into the headwaters of Hop Brook in Marlborough. As a result of high levels of nutrients, especially phosphorous, in the plant's effluent, algal and aquatic weed growth in these ponds have caused their severe eutrophication. Notably, in warmer weather, decaying algae makes the ponds putrid and inhospitable for fishing, swimming, or boating. Phosphorus-laden sediments in those ponds are an ongoing source of nutrient loading to surface waters.

In October of 2006, after more than a decade of negotiations and litigation Marlborough accepted a discharge permit issued by EPA and Massachusetts Department of Environmental Protection (DEP). Over time the permit will severely limit the amount of phosphorous in the plant's effluent. Please see Summary of EPA and MassDEP Final NPDES Permit to the Marlborough Easterly Wastewater Treatment Plant, dated November 10, 2006, attached hereto as Appendix 6, for more information.

The remediation of the Hop Brook system's three major ponds will likely involve the following:

1. **Public education:** The PWC has the potential to play a key role here. Opportunities include drafting newspaper articles, preparing education materials (i.e., flyers) for public dissemination, hosting public events (i.e., walks, public forums), and posting information on the PWC's web site.

2. **Data collection/assessment:** This is an ongoing process. *See* Inventory of Environmental Studies of Sudbury's Water Resources, dated July 7, 2006, attached hereto as Appendix 5 for data collected and assessment undertaken. In the winter of 2007, the Massachusetts DEP and the Army Corps of Engineers gathered sediment data from Carding Mill, Stearns Mill, and Grist Mill Ponds. The evaluation of long-term remedial options for the ponds will require a review of the studies performed to date, an assessment of any data gaps, and the collection and analysis of any necessary additional data.
3. **Short-term remedial measures:** A short-term remedial measure is water chestnut harvesting. The Hop Brook Protection Association has spearheaded this effort on Carding Mill Pond. The PWC should continue to support appropriate short-term measures.
4. **Long-term remedial measures:** Potential remedies for the long-term restoration include dredging phosphorus-contaminated sediment, alum treatment, chemical treatment, and dam removal. Remedial options are currently being evaluated by MassDEP and the Army Corps, which are expected to issue a draft report setting forth their preliminary recommendations in the fall of 2007.
5. **Reduction of nutrient loading by the Marlborough Easterly Wastewater Treatment Plant's effluent:** This is the subject of a negotiated NPDES permit jointly issued by the EPA and the Massachusetts DEP.
6. **Review of efforts being applied to similar situations in other locations:** The situation that Sudbury faces with Hop Brook is not unique to Sudbury. The PWC and its partners can make significant contributions to the survey and research of what has been tried and the degrees of success or failure by others facing this problem.

## **Recreation**

Miles and miles of well-maintained hiking trails along Hop Brook and many of its ponds are open to the public at the Wayside Inn, SVT reservations, and Town conservation lands. These trails offer opportunities for walking, photographing, cross-country skiing, snow shoeing, and other forms of passive recreation.

In addition to hiking trails, fishing is another opportunity. Hop Brook was stocked with trout, until 1973 when fishing stocking stopped due to compromised water quality resulting from Marlborough's sewage treatment plant effluent discharges. In 2006, the Wayside Inn dredged the tiny Josephine Pond just to the east of the Inn. The Pond is stocked every spring with rainbow, brown, and speckled trout, offering catch and release barbless hook fly fishing to the public. Although fishing is popular in all of the ponds, perhaps the best location is Willis Pond, with a public dock for fishing and boat launching off of Lake Shore Drive. Fish reported in Willis Pond include largemouth bass, smallmouth bass, perch, pickerel, and bullheads.

Swimming is not much of an option in the ponds, with the possible exception of Willis Pond. There are numerous water snakes and snapping turtles in the pond.

Canoeing and kayaking are popular pastimes in all of the ponds. Eutrophic conditions of the three largest Hop Brook Ponds can make paddling both unpleasant and at times impossible due to the aquatic growth and decaying algae. Willis Pond, however, remains suitable and enjoyable for paddling and small motorboats. A canoe launch is under construction at the abutting Cutting Farm Conservation Area at Cutting Pond.

Ice skates are often seen on the small pond in Haynes Meadow off of Peakham Road and on Crystal Lake and Willis Lake.

Camping is allowed in the Town conservation areas at Haynes Meadow and at Hop Brook Marsh, but a permit must first be obtained from the Conservation Commission. Camp fires are only permitted there with a separate Fire Department permit.

Mountain biking is permitted in the Town-owned Hop Brook, Haynes Meadow and Cutting Farm Conservation Lands, but not on SVT reservations. Overnight camping is allowed at both Hop Brook and Haynes Meadow Conservation Lands, with a permit from the Sudbury Conservation Commission.

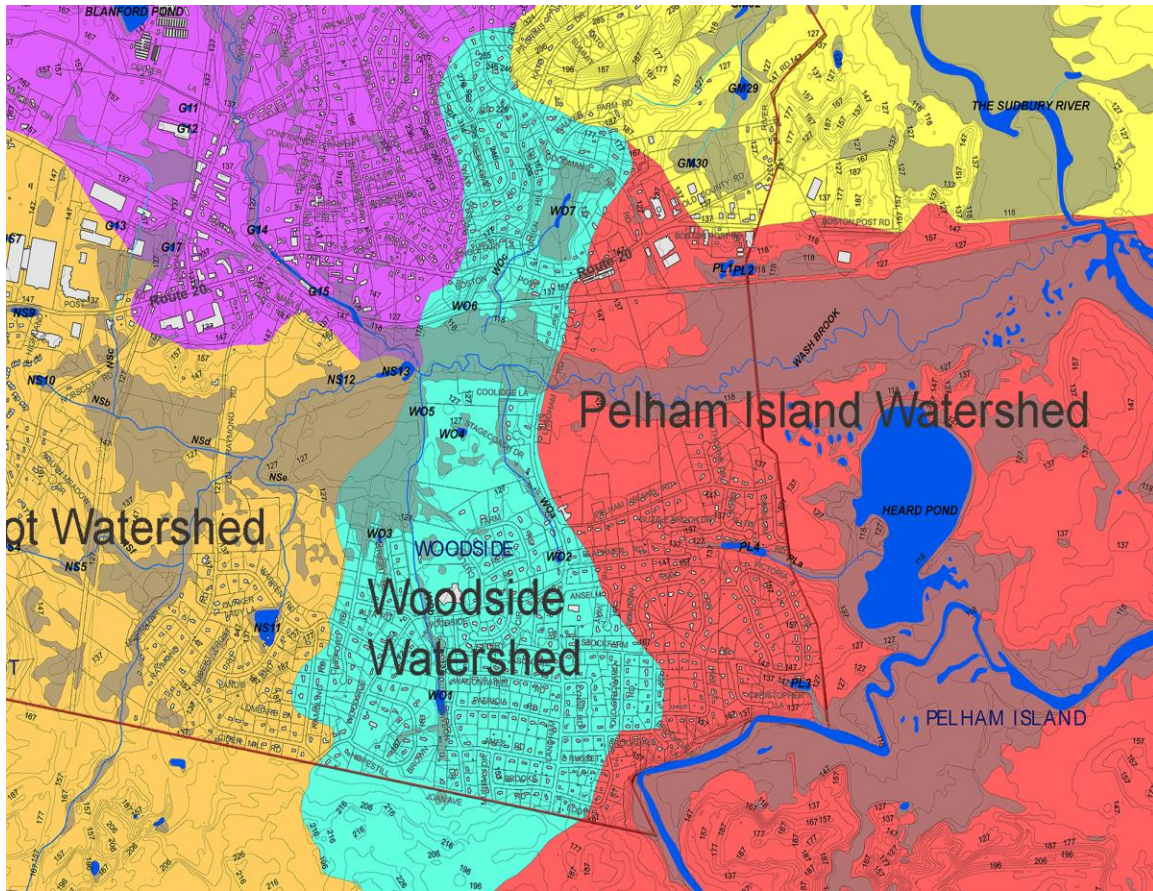
## ***Woodside Watershed***

### **Overview**

The Woodside Watershed is located on the southerly Town boundary and extends into Framingham. It abuts the Nobscot Watershed to the west and Pelham Island Watershed to the east. Allowance Brook flows northeasterly through the Nobscot Watershed, and enters the Woodside Watershed at a confluence with Hop Brook, forming Wash Brook, and flowing easterly to the Sudbury River and the Great Meadows Wildlife Refuge. Wash Brook and its adjacent wetlands complex is the Woodside Watershed's most prominent and significant hydrological feature.

The upland area of Lyons-Cutler contains a variety of red maple, mixed oak and white pine. Old ditches, possibly used as property boundaries, border some edges of the reservation and also run through the middle of the upland region. The upland forests descend gently to a red maple swamp to the south and east, and shrub swamp along the banks of Allowance and Hop Brooks on the north and west. There are large areas of blueberry, buckthorn, and cinnamon fern.

Two secondary streams run northerly within the district and empty into Wash Brook. The first (WOa) begins at a small pond on private land adjacent to Landham Road (WO1) and runs northerly over private parcels before emptying into Wash Brook north Coolidge Lane. The second significant stream (WOb) begins at a small private pond (W01) on Hopestill Brown Road, and crosses Woodside Road at the westerly edge of the Loring School property. The stream forms the boundary between Town owned land and private property located on the easterly side of Wright Road, before entering the Lyons-Cutler reservation and eventually Wash Brook. The area framed by these streams is Wash Brook and its adjacent wetlands complex which provides both rich wildlife habitat, as well as highly valuable groundwater maintenance. An active blue heron rookery is the most visible illustration of the area's quality and diversity.



## History

There is no information readily available on the history of the watershed.

## Issues and Opportunities

There are several wells for town water supply in the watershed. It is important that development in this area does not impact the ground water or wildlife habitat. There are opportunities to education residents of the open spaces where they can hike and bird watch.

## Recreation

The Lyons-Cutler Reservation, which is owned by the SVT, is located along the Allowance Brook adjacent to a Sudbury Water District parcel and lands owned by the Town of Sudbury. The contiguous open space totals more than 340 acres, and is bisected a three mile trail system that is open to the public.