

# Proposed Breakneck Hill Wetland Management Project

## Background

Breakneck Hill is an 88 acre conservation area comprised of wetland, fields, meadows and forests owned by the Town of Southborough (Figure1). The conservation area is located between Woodland Road and Breakneck Hill Road.

A number of non-native invasive plant species have become established within wetland areas or their 100 ft buffer zone at Breakneck Hill. The most notable of these are Tree of Heaven (*Ailanthus altissima*), Glossy Buckthorn (*Frangula alnus*), Autumn Olive (*Elaeagnus umbellata*), Multiflora Rose (*Rosa multiflora*), Purple Loosestrife (*Lythrum salicaria*), and Spearmint (*Mentha spicata*). These species, except for spearmint, are on the Massachusetts Invasive Plant List and are banned for importation or sale in Massachusetts due to the documented threat they pose to natural areas<sup>1</sup>.

The Southborough Stewardship Committee seeks approval from the Southborough Conservation Commission to:

- Conduct manual, mechanical and chemical invasive species management projects within wetland resource areas
- Plant native species within wetland resource areas
- Be exempt from 20ft “no touch zone” around wetland resource areas
- Conduct manual, mechanical and chemical invasive species management projects within the 100ft wetland buffers
- Plant native species within the 100ft wetland buffers

Invasive plants remain the major concern at the site. While tremendous work has been done to control invasive plants, and great progress has been made, several of the most pernicious species are resisting control efforts and could rebound quickly without continued dedicated and targeted efforts. These species are located either within the wetland resource areas or the 100ft buffer zones (Figure2). All proposed actions will improve wildlife habitat species such as birds, pollinators, salamanders and frogs. All proposed management actions are dependent on available funding.

## Invasive Plants

- Purple loosestrife is very common in the wetland resource areas Entire purple loosestrife plants will be dug up by the root system and carefully removed. All excess soil will be removed before plants are disposed off site. Alternatively, purple loosestrife flowering heads will be removed by hand, bagged and brought off site for disposal.

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<sup>1</sup> The full list of plants known to be invasive in Massachusetts can be viewed at <http://www.massnrc.org/mipag/>

While Biocontrol with *Galerucella* beetles has proven effective in nearby areas, this site is not large enough or dense enough to sustain a beetle population.

- Multiflora rose is a serious concern in the wetlands north of the parking area and to a lesser extent in the North Pasture. Within the wetland resource area herbicide will be applied by cutting and painting the stems to minimize disturbance to non-target species, while allowing their root systems to remain in place and decrease soil disturbance. Shrubs within the 100 ft buffer area will be sprayed with backpack sprayers or mechanically removed.
- Glossy buckthorn – This small shrub is common on the wetland edge of the north and south pasture as well as within the wetlands. Glossy buckthorn is also prone to growing in the tangles of fallen apple trees within the pastures. In addition several stems grow on the few rock outcrops present in the pastures that restrict close mowing (Figure 3). Downed apple trees and limbs will be removed so that invasives in the pastures can be managed through mowing. Within the wetland resource area herbicide will be applied by cutting and painting the stems to minimize disturbance to non-target species, while allowing their root systems to remain in place and decrease soil disturbance. Shrubs within the 100 ft buffer area will be spot sprayed with backpack sprayers or mechanically removed. The stems growing on rock outcrops will need to be periodically removed by hand.
- Autumn olive – This shrub grows around areas of the pastures that are not managed by mowing due to fallen limbs of trees or rocky outcrops. This species is threatening to take over a large portion of the South Pasture. A few large, mature, fruiting individuals appear to be seeding the invasion. These plants will be the target of a concerted control effort. Autumn olive can completely take over a field, forming a dense thicket of very low habitat value. All observed shrubs are within the 100 ft buffer area and will be spot sprayed with backpack sprayers or mechanically removed.
- Spearmint is not listed as an invasive plant in Massachusetts, but is non-native and is showing invasive like behavior in the main wetland at Breakneck Hill. This species will be manually dug up and removed similarly to purple loosestrife. Care will be taken to dislodge as much soil from the root system as possible before bagging and disposing off site.
- Tree of heaven – A small stand of these trees is found on the west side of the North Pasture near an intermittent stream. The stand has spread in recent years and is forming a monoculture. These trees will be removed and the stumps treated with herbicide to prevent regeneration. Native grass seed will be spread around the treated area to discourage growth of new Tree of Heaven seedlings. All observed trees are within the 100 ft buffer area.

*Licensed pesticide applicators by the Massachusetts Department of Agricultural Resources will perform all herbicide applications. Wetland approved herbicides such as Rodeo, a Glyphosate based product, or Garlon 3A, a Triclopyr product, will be used. Exact concentrations and methods of application will be determined by the contracted licensed applicator.*

## **Management Areas**

There are four wetland areas at Breakneck Hill. They are the Main Wetland, the Stonewall Wetland, the Vernal Pool, and the Stream. All proposed management activities within the wetland resource areas or their 100 ft buffer areas are focused on removing invasive species,

restoring with native species, improving habitat for wildlife such as birds and pollinators, as well as enhance the public use experience. All proposed management actions are dependent on available funding.

### Main Wetland

This area will be managed primarily as pollinator habitat. Purple Loosestrife is currently the most abundant species present within the wetland resource area and ultimately provides a low-quality monoculture for late season nectar and pollen. By removing the loosestrife and replacing with native species that provide early, mid and late season nectar and pollen sources this wet meadow will be a rich source of pollen and nectar for native pollinators all year round. Proposed management takes place in the wetland resource area and the 100ft buffer area (Figure 4).

The entire wet meadow along Breakneck Hill Road is within the 100 ft buffer area and extends east into the wetland. This area will be mowed in October to encourage the growth of meadow flowering species. A mower height of 6-8" will be used. Small sections of the field will be scarified down to the soil to expose small bare patches of dirt to restore with native species. A patchwork of exposed areas will reduce the potential of soil erosion into the wetland as well as enable species to grow in clumps across the fields. This growth pattern facilitates bees preferred method of collecting pollen and nectar as well as facilitates cross pollination of species in the meadow.

Purple loosestrife, multiflora rose, glossy buckthorn, and autumn olive grow within the wetland resource area. Purple loosestrife is the main invasive with the densest stands on the western edge of the ditch extending from the parking area to the community gardens. Purple loosestrife will be removed from the wetland by digging up root balls of the plants, dislodging as much soil as possible before properly disposing offsite. Alternatively, if plants cannot be removed easily by digging inflorescences will be hand cut, bagged, and disposed off site. When possible, native species will be planted behind the removed purple loosestrife, reducing disturbance to the wetland. All multiflora rose, glossy buckthorn, and autumn olive will be treated with herbicide after cutting the stems. Debris will be collected and removed off site for disposal. This method of treatment will reduce affects to non- target species as well as reduces soil disturbance.

On the eastern edge of the wetland the 100 ft buffer area extends into two main pastures. This area will be mowed after August 1st to reduce growth of vegetation and maintain the field appearance. Selective removal of trees and their fallen limbs will be conducted to enhance management. In large stands herbicide application with backpack sprayers, or mechanical removal of shrubs will be used. Manual removal of vegetation around rocky outcrops may also be needed. Spearmint is present on the wetland/ field edge. This species will be manually dug up and removed similarly to purple loosestrife. Care will be taken to dislodge as much soil from the root system as possible before bagging and disposing off site. Native species will be planted after invasive management actions depending on funding.

The current parking location is within the 100 ft buffer area. It currently has potholes and will need to be regraded by raking to smooth the surface of the parking lot. There is currently a puddle that collects in the north east corner of the parking lot that attracts many pollinators and is viewed as an asset to the site. A small swale will be re-created in the wet meadow within the 100

ft buffer area that will collect water with exposed soil. The entire area of this swale will not exceed a square meter.

#### Stonewall Wetland

The stonewall wetland is a man-made wetland that was created to mitigate the installation of the road. There are purple loosestrife plants growing within the wetland resource area and has an overgrowth of multiflora rose, autumn olive and glossy buckthorn within the 100ft buffer area that obscures a stone wall sitting area. (Figure 4). Purple loosestrife will be removed from the wetland by digging up root balls of the plants, dislodging as much soil as possible before properly disposing offsite. Alternatively, if plants cannot be removed easily by digging inflorescences will be hand cut, bagged, and disposed off site. All shrubs will be treated with herbicide and manually removed to clear out the public use sitting area along the stone wall.

#### Vernal Pool

The vernal pool wetland is a certified vernal pool and clearly reflects recent use by livestock. The lower banks of the pool are heavily eroded, very steep, and almost entirely devoid of vegetation (Figures 5). The pool is well-shaded by the large trees that stand on the upper banks, and limbs dropped from these trees into the pool provide good coarse woody structure which is important for vernal pool wildlife. Existing pastures and trail systems surround the pool in the 100 ft buffer area which will be continued to be mowed 6-8 inches in height. The fallen branches from trees within the wetland will be left in the pool. All limbs and trees that fall outside of the pool will be removed to facilitate mowing management for the fields and trails. The lower banks will be allowed to revegetate and monitored for establishment of invasive species. If invasive species are present, they will be manually removed or chemically treated with effort to reduce soil disturbance. Native species will be planted in their place. All proposed management will be within the 100 ft wetland buffer area (Figure 4).

#### Stream

A small intermittent stream outlined on the wetland delineation plan titled Breakneck Hill Road Conservation Land completed by Lucas Environmental is a conservative estimate of the wetland boundary (Figure 6). There is a tree of heaven stand found on the west side of the North Pasture near the wetland boundary (Figure 4). The stand has spread in recent years and is creating a monoculture. These trees will be removed and the stumps treated with herbicide to prevent regeneration. Native grass seed will be spread around the treated area to discourage growth of new tree of heaven seedlings. All proposed management will be within the 100ft wetland buffer area.

*A restoration specialist will be consulted before the start of each restoration project to identify specific species appropriate for replanting as well as implementation methods. Erosion control measures will be taken when needed.*

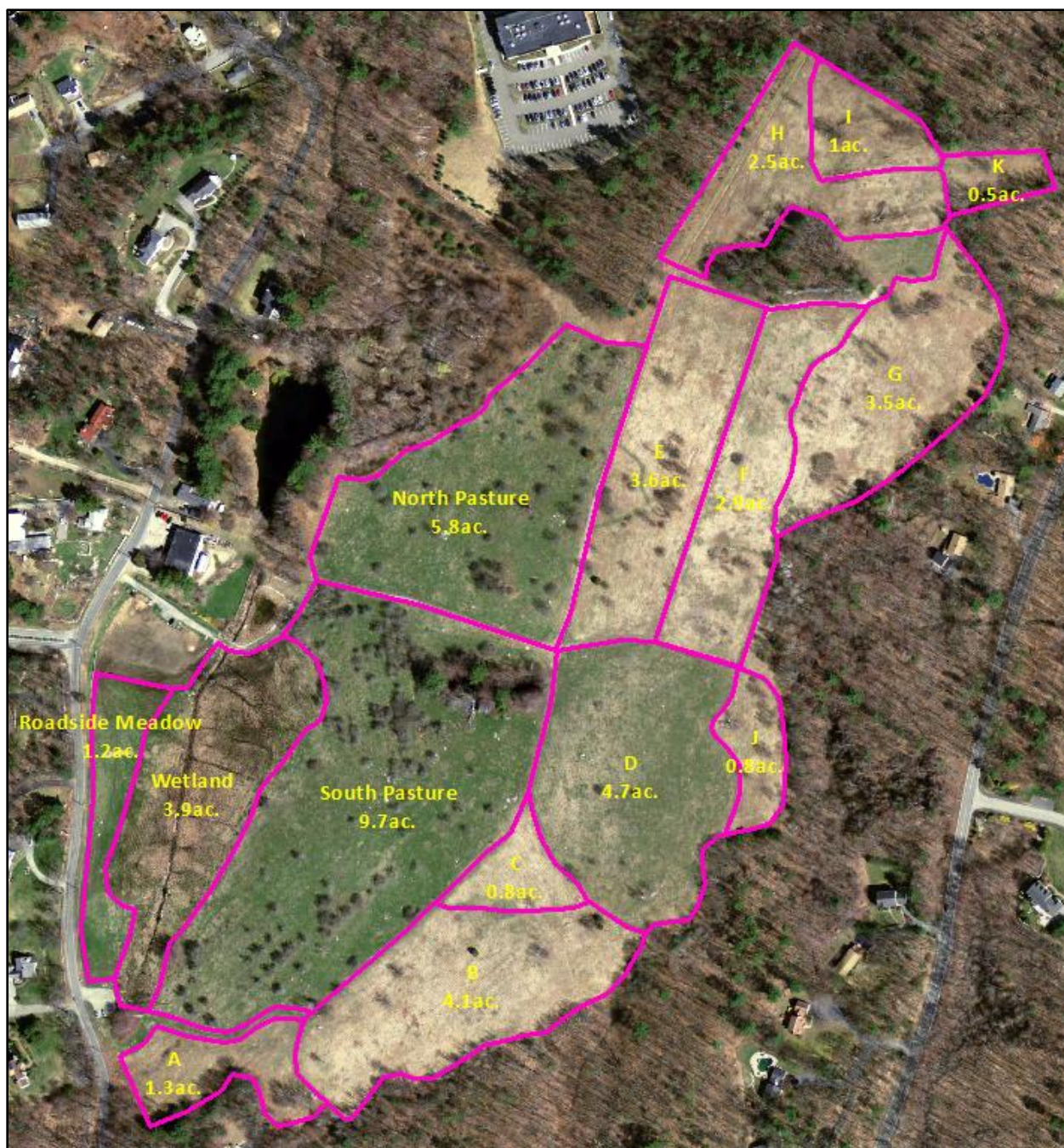


Figure 1. Breakneck Hill Conservation Area with pasture sections and acreage indicated (2013 aerial photo from MassGIS).



## Breakneck Hill Wetland 100 ft Buffer



Figure 2. Breakneck Hill Wetland with 100 ft buffer areas





*Figure 3. Invasive plants growing on rock outcrops in pastures.*



# Breakneck Hill Wetland Management

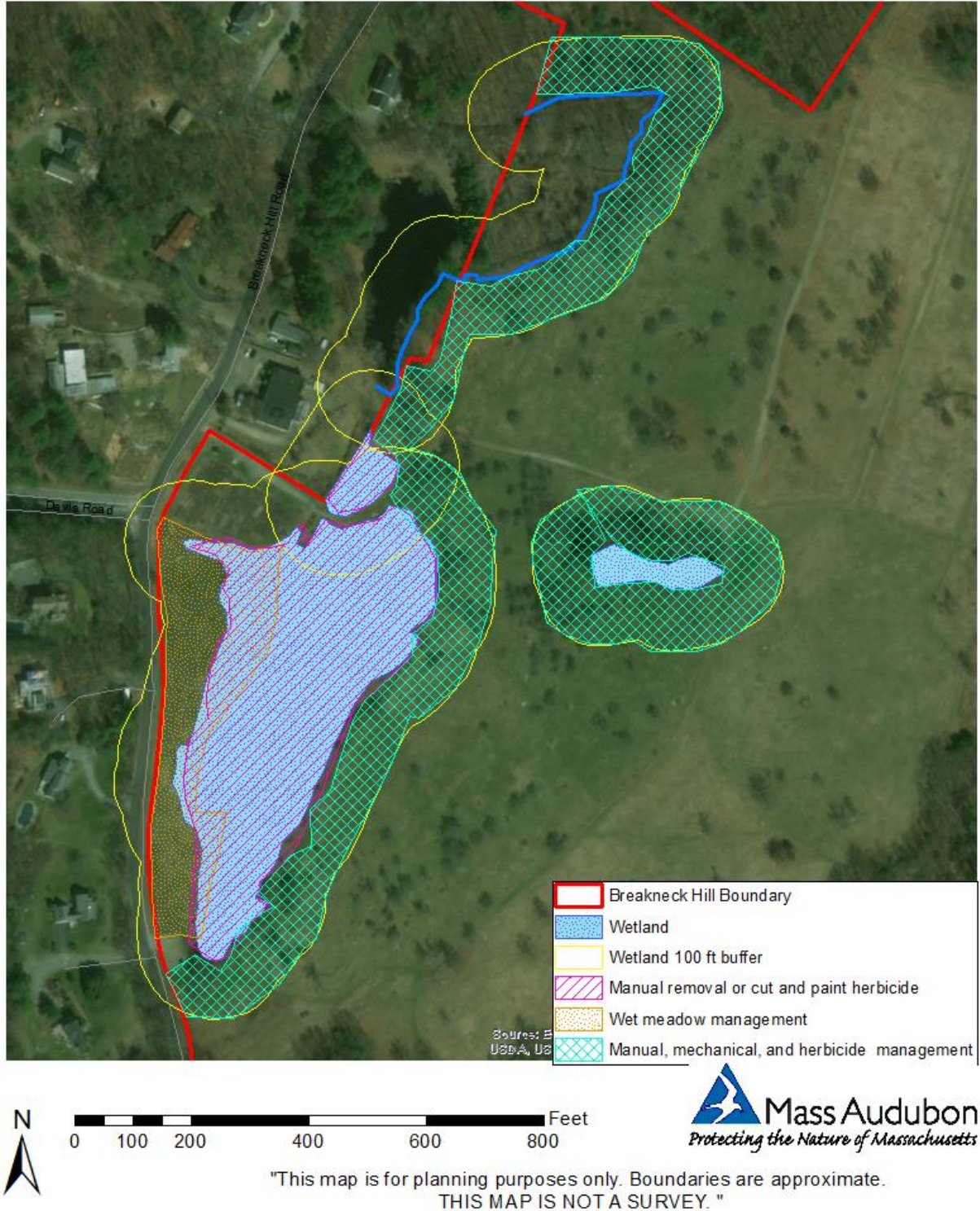


Figure 4. Wetland Management Actions





*Figure 5. Banks of the vernal pool are steep and unvegetated.*

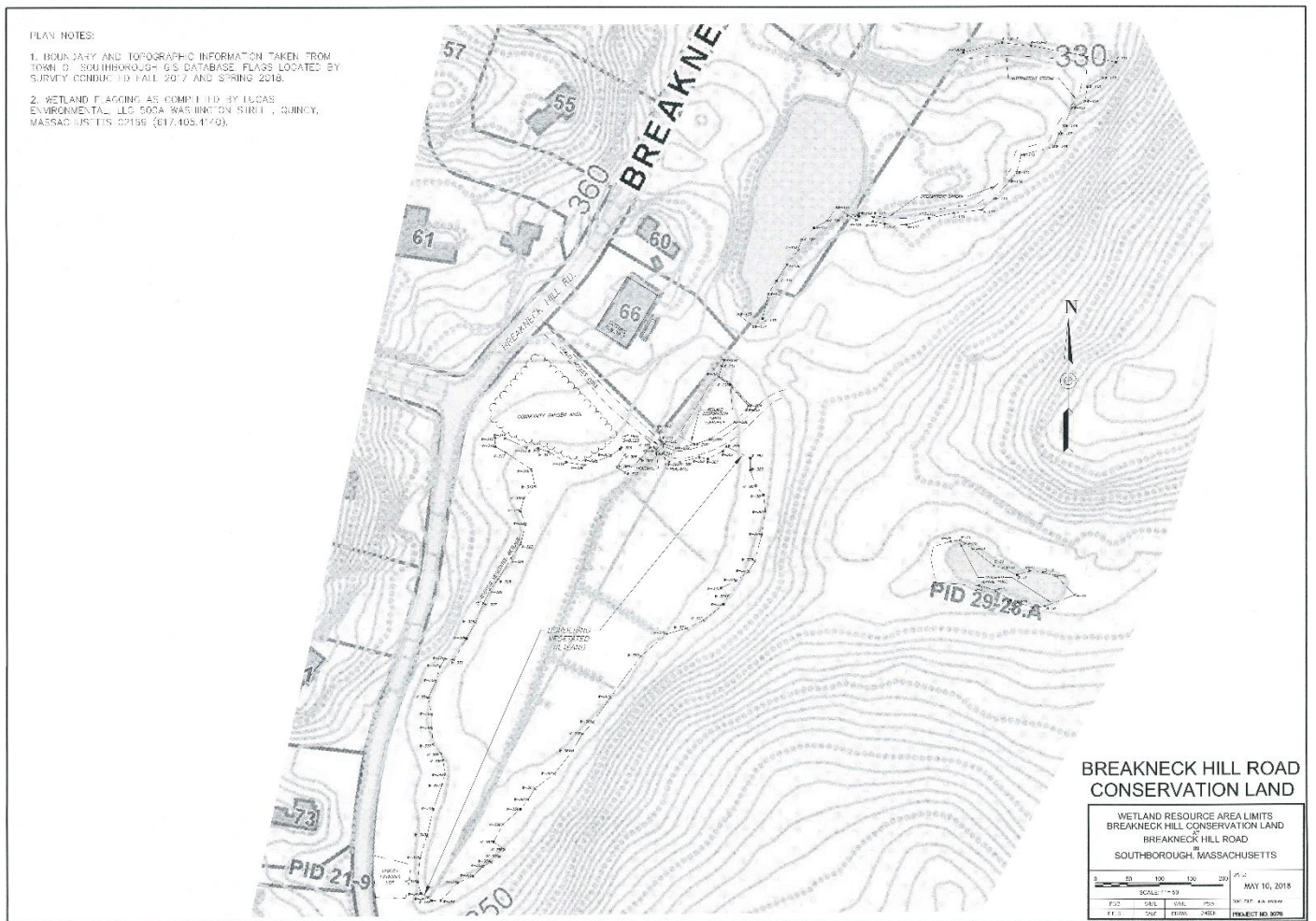


Figure 6. Plan of wetland delineation at Breakneck Hill.