



December 16, 2010

Town of Pembroke  
c/o Mr. Edwin Thorn, Town Manager  
100 Center Street  
Pembroke, MA 02359

**Re: 2011 Proposal for the Continuation of the Hydrilla Control Program at Hobomock Pond –  
Pembroke, MA**

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Dear Mr. Thorn:

The aquatic vegetation control program performed at Hobomock Pond has been very effective at controlling the targeted non-native hydrilla (*Hydrilla verticillata*) infestation. As we outlined in our 2010 Project Completion Report, however, continued management of this invasive species is necessary to prevent additional spread and to achieve a level of sustainable long-term control. For this reason we are providing the following proposal for the continuation of the program. We have made some minor modifications to the program scope to provide an effective hydrilla management program at a more manageable annual budget.

Continued plant monitoring is an important component of the program and should be continued, as the data collected is essential to assessing program effectiveness and potential future plan modifications. If the proposed program is agreeable to the Town it shall serve as our agreement for the outlined services in 2011.

**Scope of Services**

Following a similar scope to the program developed in 2009, we have outlined the specific services to be provided by Aquatic Control in 2011.

***Task 1 – Prepare & Obtain Required Permits***

A valid Order of Conditions permit for this project was issued by the Pembroke Conservation Commission in the spring of 2009. This permit remains valid for a period of three years from the date of issuance, so no additional permit will be required on the local level.

As a Commercially Licensed Application Company, we will file a *License to Apply Chemicals* permit with MA DEP, Office of Watershed Management. This is a straightforward application that can usually be approved in a matter of a week or two. This permit application will be prepared and filed immediately upon receipt of the executed contract. The Town will be provided a copy of the approved License (permits) issued by DEP prior to treatment.

***Task 2 – Pre Treatment Vegetation Surveys and Tuber Sampling***

In addition to the more comprehensive aquatic plant surveys discussed, ACT, Inc. will perform additional inspections beginning in late May to determine when vegetative hydrilla growth has begun and establish the desired timing of the initial herbicide treatment. This is essential to effective long-term control of hydrilla and the collection of meaningful pre and post management data.

A comprehensive pre-treatment aquatic plant surveys will be conducted to determine the presence/absence of hydrilla and other aquatic plant species throughout Hobomock Pond. The survey will utilize a point-

intercept survey methodology (Madsen 1999) to facilitate the collection of a large data set in a relatively short amount of time.

Surveys will be performed once active vegetative hydrilla growth has begun. The 57 data point locations established during the 2009 program will again be sampled in 2011. Data point locations will be navigated to using a Trimble Pro XRS or XT Differential GPS unit.

During the survey the following information will be recorded at each data point:

- Water depth
- Aquatic plant species present
- Dominant aquatic plant species
- Overall areal plant cover

The presence/absence of aquatic plant species at each data point will be assessed from two throw-rake tosses, and observations directly below the boat from the surface and using an underwater camera system. Overall areal plant cover will be recorded using a simple density index (1 = 1-25% cover; 2 = 26-50% cover; 3 = 51-76% cover; & 4 = 76-100% cover) in order to track possible variations in plant cover pre and post-treatment. Focusing on presence/absence data will remove subjectivity from the data collection process.

Pre-treatment hydrilla tuber sampling will be performed at the time of the vegetation surveys. The same ten sample sites that have been sampled since the start of the project will be for this task. At each of the sample sites, ten replicate sediment samples, representative of the upper 4-6 inches of soft sediment, will be collected from an approximate one square-meter area using a modified post-hole type digger (min. 100 total samples). Each sediment sample will be strained on site to extract viable hydrilla tubers and/or turions. The number of collected tubers will be used to extrapolate the number of tubers per square meter in the pond, which will be used as an additional means of evaluating management effectiveness.

### ***Task 3 – Herbicide Treatment Program***

The treatment approach that we are proposing is virtually the same as previous years with the exception of the Sonar formulation. The pellet formulation Sonar One will be applied at a rate necessary to achieve an average in-pond fluridone concentration of ~4-6 ppb or greater for the period necessary to control the vegetative hydrilla present (~60-90 days). The treatment program will be initiated shortly after vegetative growth is apparent, typically in June.

#### Application Methodology

All chemical applications will be performed by our trained and supervisory-level MA Commercially Certified personnel. Keith Gazaille, ACT Senior Biologist, or other ACT MA supervisory pesticide applicators will be present to perform and/or oversee all herbicide applications.

Prior to treatment, the pond volume will be calculated using pre-treatment survey water depth data to ensure proper dosing of the herbicide. During the application of the herbicide a GPS system will be used as a navigational tool. A map of the pond, created using ArcView - GIS based software, will be downloaded into the GPS unit. The path of the spray boat in relation to the pond shoreline will be tracked and viewed on the screen of the GPS unit, enabling very area specific application and even distribution of the herbicide.

The chemical will be applied from our specially equipped (shallow draft) Jon Boat. The sonar pellets will be evenly broadcast throughout the pond using a cyclone seeder/spreader mounted on the front of the boat.

#### FasTEST Monitoring

Sonar residue sampling/monitoring is very important to guide the timing and dose of follow-up booster applications, if required. FasTEST sample collection will be performed from a central location in the pond to document in-pond fluridone concentrations following the initial treatment. The estimated sampling frequency is approximately once every 2-4 weeks. We recommend that regular sampling be conducted over a

minimum of four sampling rounds for a total of four samples. During these FasTEST sample collections, ACT's Biologists will also field check the response of the hydrilla to the fluridone treatment by collecting plant specimens for evidence of chlorosis and photo-documenting these conditions.

Posting and Notifications

According to the product label, there are no restrictions on swimming, boating or fishing following a Sonar application. We suggest, however, a one-day closure on the day of the initial application and any required booster applications. Use of pond water for irrigation purposes is restricted per the label for a period of 30 days following treatment.

Pre-treatment notifications will be drafted and submitted to the Town for distribution to the local media outlets, if required. Prior to the initial Sonar application, the pond shoreline will be posted with brightly colored signs that warn of the pending treatment and the associated temporary water use restrictions.

**Task 4 – Data Interpretation and Reporting**

Deliverable maps will be produced in a GIS format. Orthophotos available from MassGIS will be used as the base maps. A map showing the pre-treatment data point locations will be created. Separate maps showing pre-treatment vegetation cover will be produced. A map showing the hydrilla infestation will be created using the survey data. Both print and digital copies of the maps will be provided.

The maps and our other pre-treatment findings along with a review of the treatment program will be presented in a Project Completion Report that will be submitted by the end of December. This report will include the maps described above, a plot/graph of the Sonar FasTEST concentrations, a narrative text that describes the treatment program and photographs taken with a digital camera that document conditions before and after the chemical treatment program. The report will also specify treatment or other applicable management recommendations for future years.

**Client Responsibilities**

It would be your responsibility to comply with the following:

- Pre-treatment notification to the pond residents of the proposed treatment date(s) and any temporary water use restrictions in effect following treatment.
- Compliance and enforcement of temporary water-use restrictions.
- Securing and maintaining all required permits for this work, with the assistance of the consultant
- Compliance with the Order of Conditions unless otherwise agreed to in writing by the Consultant.

**Tentative Schedule of Performance**

- File MA DEP Permit application .....February
- Pre-treatment Inspection..... late May/early June
- Initial herbicide treatment..... late May/early June
- Post-treatment inspection(s) ..... June-September
- Project Completion Report..... December

**Cost and Payment Schedule**

The 2011 treatment program costs are outlined below:

**TASK 1 - Permitting**

- Prepare and file MA DEP License to Apply Chemicals Permit ..... \$350<sup>1</sup>

**TASK 2 – Pre-Treatment Vegetation Survey & Tuber Sampling**

- Perform pre-treatment vegetation survey to document and map plant growth conditions and assess tuber density..... \$2,250

**TASK 3 – Sonar One Treatment Program**

- Perform whole pond Sonar One herbicide treatment for the control of hydrilla (Includes Sonar One treatment, materials, equipment, and labor) ..... \$9,250

**TASK 4 - Project Reporting**

- Prepare Project Completion Report and pre-treatment vegetation assemblage maps in GIS format .....\$950

**2011 Program Total .....\$12,800**

*<sup>1</sup>- In June 2010, the US EPA made available to the public a draft of the National Pollutant Discharge Elimination System (NPDES) permit for point source application of pesticides to US waters. The final set of regulations is expected to be available in January of 2011 and is mandated to take effect on April 9<sup>th</sup> 2011. Until the final regulations are published, we have no way of knowing what they will entail; however, based on the draft regulations, we anticipate that additional permitting, survey work and regulatory reporting will be necessary in order to legally complete the project as proposed. We will inform you of the additional work and associated costs required by the final regulations as soon as possible*

Invoices will be submitted upon completion of the various program tasks. Payment, in full, will be due within 30 days of the issuance of each invoice.

Specific, mutually agreeable date(s) for chemical treatment will be scheduled with you in advance. Our ability to proceed with this treatment is contingent upon timely receipt of the required permits. **In order to file your DEP permit in a timely manner it is important that this proposal be signed and returned as soon as possible.** The costs and services outlined in this proposal will remain valid for a period of 90 days. If you have any questions or require additional information, please do not hesitate to contact our office.

We are looking forward to working with the Town again in the year ahead. We are very confident that the proposed management program will continue to provide effective control of the non-native and invasive hydrilla growth in Hobomock Pond.

Sincerely,

**AQUATIC CONTROL TECHNOLOGY, INC.**



Gerald N. Smith  
President/Aquatic Biologist

**ACCEPTED BY: Town of Pembroke**

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(sign name)

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(print name)

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(date)