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July 9, 2018

Tommy Lee  
 Cedar Meadow Lake Watershed District  
 P.O. Box 320  
 Leicester, MA 01524-0320

**Re: 2018 Aquatic Plant Survey Report  
 Cedar Meadow Lake, Leicester, Massachusetts  
 ESS Project No. C609-002**

Dear Mr. Lee,

ESS Group, Inc. (ESS) is pleased to present this summary report for the 2018 aquatic plant survey of Cedar Meadow Lake in Leicester, Massachusetts. ESS conducted a plant mapping effort at Cedar Meadow Lake on May 31, 2018 to characterize plant growth in the lake and determine whether an aquatic weed treatment would be warranted this year.

**Aquatic Plant Mapping Results**

ESS documented fifteen species of aquatic macrophytes, including one aquatic invasive species, in Cedar Meadow Lake on May 31, 2018 (Table 1).

**Table 1. Aquatic macrophytes documented in Cedar Meadow Lake on May 31, 2018.**

Common Name	Scientific Name	Status
Filamentous Green Algae	<i>Chlorophyceae</i>	Native
Watershield	<i>Brasenia schreberi</i>	Native
Spikerush	<i>Eleocharis</i> sp.	Native
Canadian Waterweed	<i>Elodea canadensis</i>	Native
Aquatic Moss	<i>Fontinalis</i> sp.	Native
Variable-leaf Milfoil	<i>Myriophyllum heterophyllum</i>	Invasive
Southern Naiad	<i>Najas guadalupensis</i>	Native
Stonewort	<i>Nitella</i> sp.	Native
Yellow Water Lily	<i>Nuphar lutea</i>	Native
White Water Lily	<i>Nymphaea odorata</i>	Native
Thinleaf Pondweed	<i>Potamogeton pusillus</i>	Native
Spiral Pondweed	<i>Potamogeton spirillus</i>	Native
Common Bladderwort	<i>Utricularia macrorhiza</i>	Native
Purple Bladderwort	<i>Utricularia purpurea</i>	Native
Water Celery	<i>Vallisneria americana</i>	Native

Plant cover was generally low throughout much of the lake, with aquatic vegetation covering less than 50% of the bottom except in certain coves and shallow areas primarily located along the western and northern shoreline (Figure 1). Plant biovolume was also low throughout most of the lake, indicating that





Mr. Tommy Lee  
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plants were not growing near the water's surface, except in shallow coves. The plant community within Cedar Meadow Lake was dominated by southern naiad (*Najas guadalupensis*), stonewort (*Nitella* sp.), and thinleaf pondweed (*Potamogeton pusillus*), all of which are native species.

Compared to ESS's previous aquatic plant mapping results, variable-leaf milfoil (*Myriophyllum heterophyllum*) cover increased from 4.3 acres in May 2016 to 8.6 acres in May 2018 (Figure 2). However, overall cover of aquatic invasive species in Cedar Meadow Lake remained low. Milfoil growth was limited to six areas within the lake, and high densities were confined to coves in the western and northeastern portions of the lake. ESS personnel were unable to access the basin north of Rawson Street in 2018 due to ongoing road construction; therefore, the status of this area was not assessed.

These results suggest that variable-leaf milfoil has begun to slowly recolonize shallow, protected areas of Cedar Meadow Lake following the highly effective treatment administered in 2015. The increase in variable-leaf milfoil observed in the lake this year likely represents an expansion of a remnant population of this species that persisted in the lake following the 2015 treatment. While the total acreage of variable-leaf milfoil in Cedar Meadow Lake has doubled since 2016, this still represents only a small fraction (approximately 6%) of the total surface area of the lake. Additionally, the densest areas of milfoil growth are confined to two shallow coves and would not be expected to pose an impediment to recreation or navigation in the lake at current levels. Finally, similar to the 2016 survey, fanwort (*Cabomba caroliniana*) was not detected within the main basin this year.

### **Recommendations for 2018**

Three years following the herbicide treatment of Cedar Meadow Lake in 2015, overall cover of aquatic invasive plant species in the main basin of the lake continues to be well below pre-treatment levels. Prior to treatment in 2015, fanwort cover in the main basin of the lake was approximately 20.0 acres, and variable-leaf milfoil cover was approximately 3.0 acres. The 2018 survey of Cedar Meadow Lake documented variable-leaf milfoil in approximately 8.6 acres of the main basin, while fanwort was not documented at all.

While variable-leaf milfoil has expanded within shallow, protected areas of Cedar Meadow Lake, the survey results suggest that this species is not likely to present an impediment to recreation or navigation in the lake at current levels. Therefore, at this time ESS recommends continuing to monitor the population of variable-leaf milfoil (as well as fanwort and other aquatic invasive species) in the lake on an annual basis to determine whether future treatment may be warranted.

We appreciate the opportunity to serve you. Please contact the undersigned at (401) 330-1233 if you have any questions.

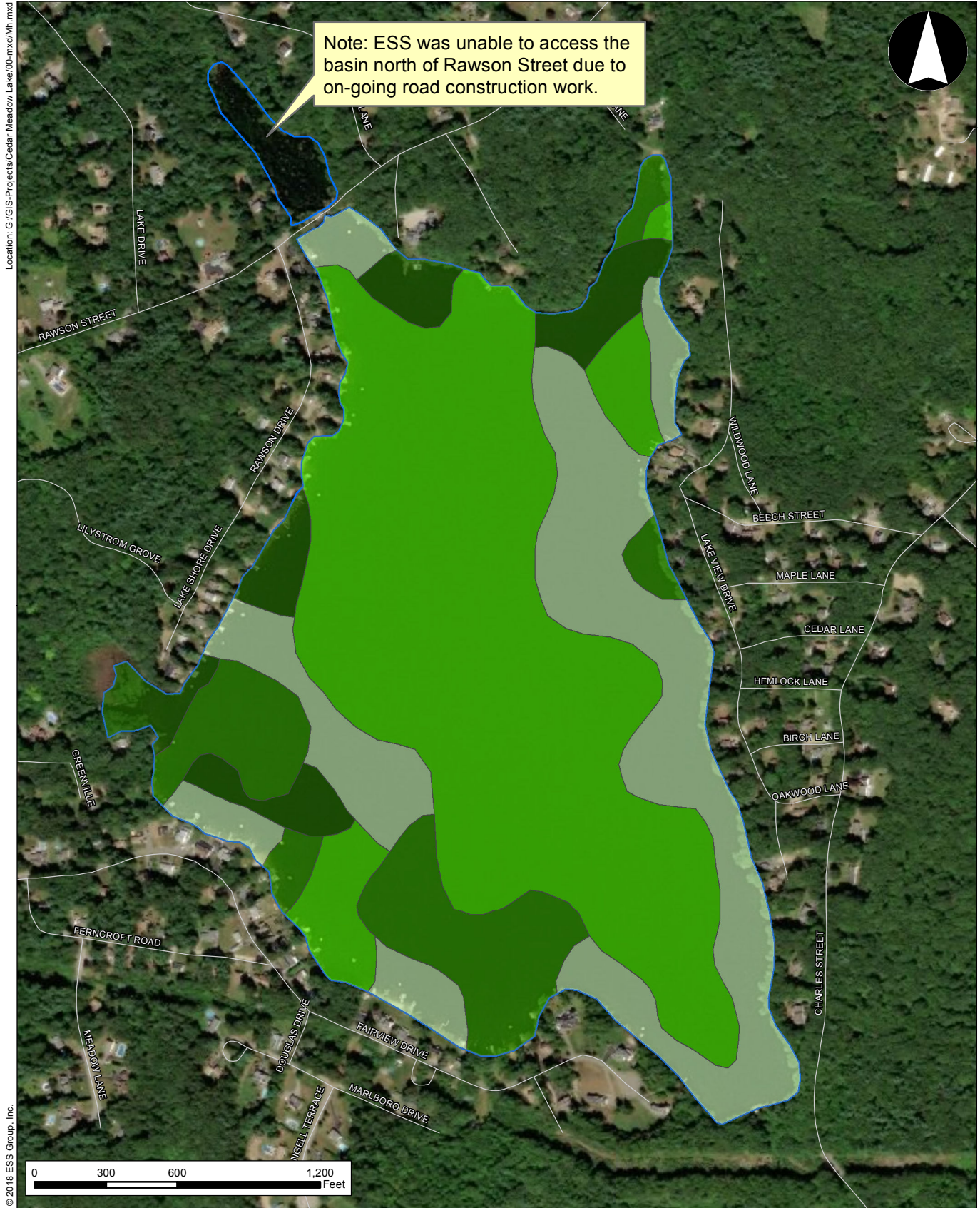
Sincerely,

**ESS GROUP, INC.**

A handwritten signature in blue ink, appearing to read "Alexander H. Patterson".

Alexander H. Patterson  
Project Scientist





Note: ESS was unable to access the basin north of Rawson Street due to on-going road construction work.



**CEDAR MEADOW LAKE**  
Leicester, Massachusetts

Scale: 1" = 600'

Source: 1) ESRI, Orthos 2016  
2) ESS Plant Mapping Data, May 31, 2018

**Plant Cover**

- 1 - 1% to 25% (38.6 acres)
- 2 - 26% to 50% (73.5 acres)
- 3 - 51% to 75% (18.6 acres)
- 4 - 76% to 100% (11.6 acres)
- Cedar Meadow Lake (145.5 acres)

**Plant Cover**  
May 31, 2018

**Figure 1**



**CEDAR MEADOW LAKE**  
Leicester, Massachusetts

Scale: 1" = 600'

Source: 1) ESRI, Orthos 2016  
2) ESS Plant Mapping Data, May 31, 2018

**Variable-leaf Milfoil Cover**

- 1 - 1% to 25% (4.7 acres)
- 2 - 26% to 50% (1.1 acres)
- 3 - 51% to 75% (1.1 acres)
- 4 - 76% to 100% (1.7 acres)
- Cedar Meadow Lake (145.5 acres)

**Variable-leaf Milfoil Cover**  
May 31, 2018

**Figure 2**