



MEMORANDUM

TO: Delia Kaye, Director DNR
FROM: Matt Ladewig
SUBJECT: White Pond Status Update
COPY TO: Carl Nielsen (ESS)

DATE: 1/29/14
ESS PROJECT NO.: C596-000

Since the last progress update provided to the Town, dated 12/3/13, ESS has conducted the following key tasks:

- Laboratory results of the first flush stormwater samples collected on November 27, 2013 suggest very high concentrations of several key pollutants, including total phosphorus, nitrogen, and sediment. For example, total phosphorus levels ranged from 0.66 mg/L to 1.6 mg/L, which are orders of magnitude higher than desirable.

The next step will be to estimate the volume of water contributed to White Pond via overland flow from the various erosional areas along the shoreline. This information will be used to generate sheet flow nutrient loading rates, which will illustrate the relative magnitude of these inputs in the White Pond nutrient budget.

- Based on evaluation of the hydrogeologic setting of the pond, historic evaluations of groundwater and surface water elevations and the results of the recent seepage survey, ESS has developed a conceptual model of groundwater flow conditions in the vicinity of the pond.
 - Regional groundwater flow is towards the north (Dugan Brook) and south (Cold Brook).
 - Local groundwater flow conditions are transient and dependent on groundwater elevations in the surrounding unconsolidated deposits relative to the surface water elevation in the pond.
 - Groundwater flow conditions in the immediate vicinity of the pond are also likely affected by the operation of the White Pond municipal supply wells.
 - Within the White Pond watershed, groundwater flow is typically towards the pond along the northwestern to eastern shores of the pond.
 - Within the White Pond watershed, groundwater flow conditions are variable around the remainder of the pond.
 - During periods of high groundwater, it is likely that groundwater flow is predominantly towards the pond in these areas.
 - During periods of low groundwater, it is likely that groundwater flow is away from the pond in these areas.



- Our progress on project tasks and anticipated schedule is summarized in the table below:

Task	Progress toward Completion	Notes	Timeline for Completion										
			Pre-Dec	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
1. Develop a QAPP	Complete												
2. Meetings	20%	As needed											
3. Existing Data Review	90%	Review is essentially complete – incorporating into narrative, as progress is made on other tasks											
4A. Geologic and Recent History	75%	Geologic history language drafted with partial narrative for more recent history											
4B. Watershed Delineation and Land Use	75%	Surface watershed delineated and land use classified Preliminary groundwater watershed delineation complete Build-out analysis to be completed											
4C. Recreational Use	75%	Current recreational uses documented and points of access identified/mapped Historical recreational uses summarized Impact analysis in progress											
4D. Sediment Load Evaluation	90%	Potential sources of sediment loading sampled during storm event. Lab results available.											

Task	Progress toward Completion	Notes	Timeline for Completion									
			Pre-Dec	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
4E. Pollutant Loading Evaluation	70%	<p>Potential sources of pollutant loading identified and sampled during storm event. Lab results available.</p> <p>Scoped seepage study completed</p> <p>Scoped groundwater sampling completed</p> <p>Hydrologic and nutrient budgets in progress</p>										
4F. Assess Biological Resources	75%	<p>Fish and wildlife habitats assessed</p> <p>Aquatic invasive species assessed</p> <p>Watershed invasive species partially assessed</p>										
4G. Sediment Sampling and Analysis	Complete	<p>Sediment samples collected and analyzed</p> <p>Erosional areas along the shoreline mapped</p>										
4H. Bathymetric Survey	Complete	Bathymetry map updated with current conditions										
5A. Water Quality Recommendations	0%	Will be fully developed once study results and modeling are complete										
5B. Recreational Use Improvement Recommendations	0%	Will be fully developed once study results are complete										
5C. Evaluate Town Lands	25%	Research on Town-owned parcels in progress										

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5D. Invasive Species	0%	Will be fully developed once study results are complete										
5E. Abutter Responsibilities	0%	Can be developed earlier than indicated in timeline upon request										
6. Watershed Management Plan	15%	Portions of the narrative and supporting tables/figures in progress										

If you should have any questions on these efforts, please contact me at 401-330-1224. Thank you.