

**To:** John Lopez, Amesbury Conservation Commission  
**From:** Gillian Davies, BSC Group, Inc.  
**Re:** Quimby Lane/206 Lion's Mouth Road

**Date:** January 14, 2013  
**Proj. No.**

On Friday, January 11, 2015, BSC Group, Inc. (BSC) (Gillian Davies, senior wetland scientist, and Dominic Rinaldi, engineer) visited the Quimby Lane/206 Lion's Mouth Road construction site. Buzz Couillard (Applicant), his son, and Leah Basbanes (Basbanes Wetland Consulting) attended the site visit. The purpose of the site visit was to:

1. Assess the sedimentation problem that has occurred down-gradient from the project's constructed stormwater wetland basin (SWB). Sediment has been reported to have travelled from the SWB down-gradient to a neighbor's pond.
2. Assess overall level of soil stabilization on the construction site.
3. Assess functionality of the SWB.
4. Discuss remedial measures that should be taken.

**WEATHER:**

Conditions were cold (30's) and cloudy. A few inches of snow were on the ground in most areas. Some areas had no snow. Most water surfaces were frozen, although some water surfaces were not frozen.

**OBSERVED CONDITIONS:**

Construction Site

BSC observed (see attached photos) a project site that is nearing completion, although many areas have not reached the stage of final soil stabilization. Several houses are complete, and all house foundations have been installed. The extremely steep slope on the northwest side of the property is vegetated and deemed stable by BSC engineer Dominic Rinaldi. Some of the completed houses have grassed and landscaped yards, while other house lots have not been stabilized with sod yet. Some of these house lots have mulch on their exposed soil, and in others, the soil is bare. Stockpiles do not have perimeter erosion controls, and are not stabilized. Some soil erosion was observed. The subdivision road had sediment on it.

Down-gradient Bordering Vegetated Wetlands (BVW), Stream, and Pond

The BVW that is located down-gradient of the SWB was flooded and frozen, and with some snow on the ice, so only a partial inspection was possible. BSC observed a thin layer of fine sediment that has accumulated on leaves in the BVW. The stream that outlets from this BVW exhibited only minimal sediment on the streambed, and further down-gradient, another area of BVW did not appear to have accumulated any sediment, although this observation is considered incomplete and preliminary due to snow and ice cover on the surfaces. The streambed downstream from a footbridge and upstream from the pond appeared to have a scoured streambed, with no lasting accumulation of sediments. BSC did observe some sediment accumulation on the pond bottom, although observations were limited to two small ice-free areas. BSC also observed BVW adjacent to the pond, and did not see any accumulations of sediment in the snow and ice-free areas. These pond observations are considered incomplete and preliminary, due to the ice/snow cover. These areas should be observed following ice/snowmelt.

**ISSUES TO BE ADDRESSED:**

- Site stabilization needs to be completed immediately. Steps (discussed with, and agreed to by, the Applicant and Ms. Basbanes) to be taken should include:
  - Installation of perimeter erosion controls around stockpiles, and stockpile stabilization measures taken to ensure that stockpiles are not sources of erosion and sedimentation.
  - Street sweeping should be resumed, and conducted on a daily basis as long as needed.

- All exposed soils should be mulched.
- Sodding of exposed soils should occur as soon as weather conditions allow.

-Stormwater Wetland Basin (SWB) Maintenance and Reconstruction:

- The SWB should have the accumulated fine sediments removed. BSC observed that the sediments are so fine that they go into suspension very easily. The SWB is likely to continue to be a problematic source of sediment unless the accumulated sediments are removed and disposed of appropriately. Leah Basbanes proposed installation of a 50' turbidity barrier in front of the SWB outlet prior to any dewatering and sediment removal activities. BSC concurs that this should be done, as well as any other sediment control measures. Following removal of sediment, biodegradable jute matting should be stapled down onto the bottom and un-vegetated side-slopes of the SWB so that high velocity water does not stir up soil from the bottom of the SWB. This effort will require that the SWB is drained before the removal of the sediments. Draining of the SWB should occur when no rain is predicted for at least several days. The Applicant stated that water from this de-watering process could be pumped into an adjacent house foundation. This cleanout effort should occur as soon as possible. Once ice is no longer present on the SWB, the Applicant should install a skimmer, so that water is discharged from the SWB from the top, cleanest, and least turbid portion of the water column. Once the construction site has been fully stabilized and construction work is complete, the SWB should undergo a final cleanout, and should then be reconstructed and replanted in accordance with site plans that were approved under the Amesbury Conservation Commission Order of Conditions. All of these measures were discussed with the Applicant and Ms. Basbanes at the site visit, and it was agreed that this course of action was an appropriate response to the sedimentation problems that have occurred on and off the site.

- Additional sediment control measures should be taken in down-gradient areas. Measures such as floc logs and coir rolls could be used as sediment traps in the flow path of water in down-gradient areas. Leah Basbanes proposed installation of a turbidity barrier on the up-gradient side of the footbridge through the cattail wetland. BSC concurs with this measure.

- Following snow and ice melt, another site inspection should occur, in order to more fully assess any possible areas of sediment accumulation.

- A schedule of Engineering and Environmental Monitoring should be implemented throughout the process of SWB Maintenance and Reconstruction, and Environmental Monitoring should continue until the SWB is fully vegetated and stabilized per site plans approved under the project Order of Conditions.

-BSC recommends inviting the pond owner (Chip Lynch) onsite and for a walk from the SWB through the woods to his pond, so that he can see the relatively limited extent of sediment accumulation (as far as BSC could determine, given the snow and ice conditions). The fine texture of the sediment causes it to become suspended in water with only minimal disturbance, and water can appear highly turbid, even if the amount of sediment is not large. BSC anticipates that measures to stabilize site soils, and the plan to drain, clean, stabilize, and reconstruct the SWB will prevent new releases of sediment from the site. However, the relatively small amount of sediment that appears (this is a preliminary assessment due to ice/snow cover, and needs to be confirmed after ice/snowmelt) to have accumulated in the flooded BVW may become dislodged and travel downstream, causing some additional turbidity until the BVW reaches a new equilibrium. Because the volume of sediment appears to be minimal, attempts to remove the sediment could be more ecologically disruptive than allowing it to settle in to the existing forest floor over time.

**cc:**



Steep slope has been vegetated and stabilized. Some exposed soils in yards are mulched, but others remain exposed. The Applicant has committed to mulching all remaining exposed soils.



Stormwater wetland basin is frozen. Slope above basin is vegetated. Basin should be inspected again after ice/snow have melted.



Stormwater wetland basin with some completed houses and grassed/landscaped yards in the background.



Outlet from stormwater wetland basin, and down-gradient Bordering Vegetated Wetland.



Accumulation of fine sediment is visible on leaves in water trapped by haybales that are located down-gradient of stormwater wetland basin outlet.



Flooded BVW down-gradient of SWB, with relatively small accumulation of fine sediment visible on leaves in foreground. This area should be inspected again after ice/snow have melted. Full assessment was not possible under these conditions.



Haybale check dam at outlet from flooded wetland.



Minimal sediment accumulation is visible in stream outleting from flooded wetland.



No sediment accumulation is visible in BVW down-gradient of stream from flooded wetland. Much of this BVW as covered in snow, and should be inspected again following snowmelt.



Cattail BVW up-gradient from footbridge that is up-gradient of neighbor's pond. Much of the surface is covered with snow or ice, but no sediment accumulation was visible. This area should be inspected again following snowmelt.



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Outlet beneath footbridge. No sediment accumulation is visible.



A portion of the BVW adjacent to the neighbor's pond. Much of this area is covered by snow and ice, so visibility is limited. However, no sediment accumulation was visible in the exposed areas. Inspection is considered incomplete due to snow/ice coverage, and another inspection should be completed when ice and snow have melted.



Although most of the pond was covered in ice and snow, this area was visible. Minimal sediment deposits were observed. Inspection is considered incomplete due to snow/ice coverage, and another inspection should be completed when ice and snow have melted.



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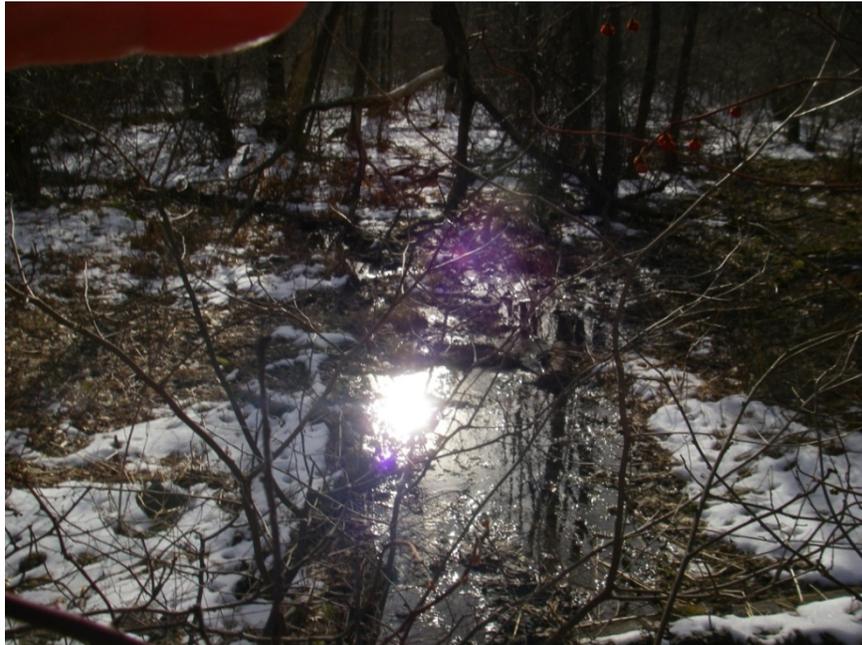
Overview of pond.



Pond outlet.



Pond outlet discharging on downstream side. Water is clear, and no sediment has accumulated in this location.



BVW down-gradient from pond outlet. BSC did not observe any areas of sediment accumulation, although some areas are covered in snow, preventing a complete inspection.



Stockpiles on site do not have perimeter controls and are not stabilized to protect against erosion. Applicant committed to installing perimeter erosion controls and ensuring that stockpiles are stabilized and do not become a source of sediment.



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Footbridge has been constructed. BSC did not observe any sediment or erosion problems in this area. It should be noted that much of the area is covered in snow, and another inspection should occur after the snow has melted.