

**TOWN OF TUFTONBORO
CONSERVATION COMMISSION**

January 20, 2020

Present: Chairman, Steve Wingate, Vice Chairman, Mike Phelps

Members: Laurel Podsen, Larry Gil and Mark Howard

Selectmen's Representative, Lloyd Wood

Members Absent: Kate Nesbit and Alternate Kathleen Murphy

Staff Present: Linda Bean, Administrative Secretary

Steve Wingate opened meeting at 6:35PM

I. Consideration of Minutes

- December 16, 2019

Laurel moved to accept the minutes with one change, Larry seconded, all were in favor. Accepted changes will be in **bold and italicized print**.

II. Discussion Items

a. Great Meadow

- Grant Progress

Steve said that if everything goes well, Rick Sager should wrap this up by next week.

b. Budget Review

We do not have the 2020 budget yet. The 2019 budget shows us in arrears, but as Lloyd explained this is an accounting process and actually, we are not.

Steve said that after we voted to approve the 2020 budget, the selectmen decided that the funds requested in that budget to support grant writing for funds to purchase and easement on the former Hersey property off Lang Pond Rd., should be in a warrant article. That warrant article has been proposed for \$12,000 and we should take a vote on whether to support it.

Lloyd moved that we sponsor this warrant article, Mark seconded it, and all were in favor.

III. Status of DES Applications

- See attached

IV. Correspondence

- None for this meeting.

V. Old Business

- **Copps Pond Project**

Steve noticed, while building the observation platform at Copps Pond, a small island. He wants to contact the owner, Roger Williams, to see if he would allow us to put some wooden nesting boxes, for the Wood Ducks, on it.

Nineteen Mile Brook report

Larry has done a fantastic job of summarizing the Normandeau report. He found the report a bit confusing due to the way it was written. Larry's conclusion is that Normandeau could have been stronger on their assessment of the impacts on the RIB. The way the report reads, nothing has exceeded state standards. However, there is an increase in the nutrients. There were definitely increases in nutrients in Whitten Pond. Could be due to the over logging on the upper bank. Separating the source of nutrients from the break outs and the logging would be expensive. Lloyd praised Larry and Steve for their thorough study of this report and all the work that they have put into this endeavor. Lloyd asked how often we should do a baseline study. Larry said that Normandeau feels that every 5 to 10 years, but to continue some type of monitoring, perhaps focusing on Whitten Pond. Lloyd asked if the quality of the baseline study would be considered a definitive document. Larry said he did not feel that it would be a definitive document. Lloyd said that Normandeau will be at the Tuftonboro Fire Dept. on February 3rd at 9:30am to present their findings. Steve said he would like to go to Wolfeboro and present our concerns and ask them to pay for the study as the need for the study is caused by their actions. Lloyd feels that Whitten Pond is something that needs to be watched. Larry will email his report to the members and the Selectmen. **Larry's summary is attached to the minutes.**

- **Landfill Proposal**

Larry met with Karen and they worked on an ad for the local newspapers asking for environmental consultant firms to put in bids for the study of the Landfill Proposal.

- **Cheney Farm**

Mike & Steve are meeting with prospective buyer of the Cheney Farm, on Thursday to discuss the existing easement. Steve suggested that the secretary put together "field files" for each easement that can be removed from the office when visiting and doing inspections on properties under easements.

- **Shane Easement**

Steve showed the map of the Bentley/Shane easement. He explained that there are two separate easements that run along Route 109 by the Twenty Mile Bay. While developing a better file system for easements it was discovered that the Commission had not been inspecting both easements which are on opposite sides of the road. Previously it was thought that one side was being monitored by the LRCT which was not the case. When Steve discovered that he made arrangements to meet with Howard Shane and they walked the property that had not been inspected for many years. This is when Steve noticed a building that according to the original easement should have been torn down. Steve asked Dr. Howard about the building. He explained that back in 1999 he had reached out to the TCC in order to add a building and use it for storage. Dr. Shane explained how he and his lawyer had written letters to inform the TCC of his intentions. Steve said that the added building is allowed under section 3 paragraph C of the easement deed, Dr. Shane did notify the TCC of his plan, and he provided copies of all letters pertaining to the request. A review of the minutes from that time period indicates that TCC discussed the building, and they seemed to be disappointed but did not take any action. Steve said that the TCC has not conducted an inspection on the west side of the road since 2002. Steve mentioned that he went down to the Twenty Mile beach and started at the North point and proceeded to the South end and could see the dock all along the route but could not see the building. Steve has comprised notes of the timeline from 1999 until now of what transpired for the record. Copies will be put in the easement folder and in our computer files for future reference. Dr. Shane asked about their dock, and how it is restricted as to **the size, 120 sq ft**. They would like to build another dock. The easement would have to be changed for this to happen. It was noted by Mike that the easement states that this is a seasonal dock. Which means it should be removed in the fall and that doesn't look like it is the case. Steve said the easement has to be studied more carefully. Larry said that future easements need to have stronger language in order to prevent changes from happening. Steve said that any further changes would have to be reviewed by the State Attorney General.

- **Mirror Lake Conservation**

Steve will be requesting the warrant article at the budget committee meeting 1/21. He has an appointment with the selectmen for 1/27 to seek their endorsement. The new owner wants to reserve two lots and the cottage lot out of the approximate 140-acre property. There are two options that Steve feels might be good to cover the costs for the easement. One is using the NRCS WRE program, which does not have time restriction for the application. Or, secondly, is to go to LCHIP or ARM which takes a great deal longer. Mike said we could have two easements, one on the Tuftonboro side and one on the Wolfeboro side. Steve said he has been to the WCC to ask if they would hold the easement on their side and they agreed. Steve has a letter of intent, and has a budget for both scenarios.

- **Chandler**

Steve inspected the Chandler Easement. Everything was good. He said that we need to write a letter to the new listed owner. Tax record shows different address than the property. Mike will look into it, but thinks the Chandlers do live there but are gone a lot. Mike will get contact info. Steve noticed trail signs that were put up using steel nails. Would like to see these signs hung with aluminum nails.

- **Old Home Weekend**

Laurel said that the scheduled meeting was cancelled. But she will do the scavenger hunt again this year. She will have more info after the meeting.

- **Facebook Page**

Mark said that he has some good news. Ray is willing to keep posting items on the Facebook page. He has made Mark administrator. Ray also added several editors. The TCC is very pleased that Ray has volunteered to help with the Facebook page. Lloyd felt that he should be recognized for going above and beyond.

VI. New Business

- **Meeting on holidays**

Laurel reminded Steve that he wanted to ask everyone about meeting on holidays. The members felt it was not a problem. Mike mentioned that holidays are a good time for seasonal residents to come to the meetings. Steve said that we should bring this up with any new members for their point of view.

- **Bio Blitz**

Laurel said that Kathleen is in charge of this so she isn't up to date. The Bio Blitz is an intense period of biological surveying in an attempt to record all the living species within a designated area. It is a one-day event where scientists, naturalists and volunteers conduct an intensive field study over a continuous time, usually 24 hours. This is an opportunity to get children outside and make them more aware of their surroundings. It is held in the spring or summer. Perhaps it will be held behind the Tuftonboro Fire Station this year. Laurel will email information to the members as it becomes available.

- **Saving Special Places**

This will be held in Alton, same as last year. It is scheduled for the 4th of April. When Steve receives more information, he will email it to the members. There is the Water & Watershed work shop in Plymouth. Steve will email agenda. Farm & Forest Day will be on Feb 14 & 15th. This event is like an Expo and is held in Concord. Lots of booths.

- **Water Testing**

Laurel talked about new ideas for the timing of the water testing. She checked with the lab in Concord and they feel that March is their slower month. Members felt that the summer months are a better choice of time to do the testing. Years ago, Steve spoke with the Selectmen about subsidizing the cost. They did not feel that they wanted to do it then. Mike said it would be nice to subsidize the cost of testing for people that find it too expensive. Steve asked about a scholarship program so people could apply for help to pay for the cost of testing. Lloyd mentioned that the TCC had non-profit help with the GM parking lot. He felt that maybe non-profit organizations might be willing to help with such a scholarship fund. Mark said he would bring the subject up at his next TA meeting.

Lloyd asked if Mirror Lake Assoc was able to find someone to continue monitoring the Lake water. Larry said that **Don Kretchmer** is going to be testing while the ice is in. Lloyd wanted to know if they needed any assistance. Larry said they have people lined up to do this.

Lloyd also asked about UNH bills for water testing as he didn't remember seeing one come through. Steve said that the bill was submitted to Diane in mid-December and it is paid.

Lloyd also mentioned that a couple residents that live in the Harvest Lane and Lanes End area wanted to know if the town wide watershed study includes sand migration from those areas. Mike said he would find out if it is part of the study.

- **FYI**

Mark had one more item to mention. Camp Belknap met with the Zoning Board and the Planning Board for a special exception to allow about 40 campers to camp overnight on Farm Island during the summer. The Camp had purchased this property in 2010 and were unaware until recently that they needed to get permission for this use. The discussion was about the disposal of waste. They assured the Boards that they are not leaving anything on the island. The removal is done on a daily basis and that they are following National Guidelines for waste removal.

VII. Non- Public Session (if necessary)

There being no further business, Mike Phelps moved to adjourn the 01/20/20 meeting, Mark Howard seconded, all were in favor. Meeting adjourned at 8:25pm.

Respectfully Submitted,
Administrative Secretary
Linda Bean

**Status of DES Applications
January 20, 2020**

1. Douglas R/ Stacy Gooding
2 Steeple Ln, MAP 52-1-20
NH DES received supporting materials on 12/13/19. They reviewed application and supporting materials on 12/13/19. The application requests a permit for impacts to a wetland at the subject property. State recd application.
2. Lincoln Family Trust
38 Little Bear Island, MAP 25-1-35
Remove two 6'x40' piers, a connecting walkway and four cribs. Construct three 7'x4' concrete pads, and install three t'x40' seasonal piers connected by two t'x12' walkways, with a 14'x34' seasonal canopy, two seasonal boatlifts and two personal watercraft lifts on an average of 259' of frontage along Lake Winnepesaukee on Little Bear Island. State outlined 8 conditions.
3. Peter Kawczyk
10 Senter Cove Rd, MAP 2-1-64
State recd application and supporting materials on 12/13/19. Application requests a permit for impacts to wetland at the subject property.
4. William Deyesso
Durgin Rd, MAP 46-2-9
Dredge and fill 1,367 sq ft of palustrine forested wetland and two intermittent streams in order to construct install a culvert for a driveway. State approved with 10 conditions.
5. Ann Swain
28 Senter Cove Rd, MAP 2-1-55
Provide a 4'x40' seasonal dock, seasonal steps for access to dock. Mike Phelps inspected.
6. Barvel Whang
Route 109 Sandy Shores, MAP 14-3-46
State has requested additional information. Also letter from Donald Berry was sent to David Farley, Diversified Marine Construction stating that he is one of several owners of this land. None of the owners were notified of this DES Application.
7. Wadsworth Street LLC
55 Banfield Rd, MAP 38-3-4
State asked for confirmation that the ice cluster was removed per previous application. Advantage NH Lakes responded with a copy of the plan and confirmed that the ice cluster was indeed removed.
8. Paul Remus Rev Trust
94 Cow Island, MAP 38-1-244
Copy of letter to an abutter (Paul Remus) of an application to replace 4 existing piling and an existing U-shaped permanent piling dock consisting of two 6'x30' dock fingers and a 6'x12' connecting walkway. Additionally, this project proposes adding two three-pile ice protection clusters, two seasonal PWC lifts and a single seasonal boatlift.

9. Lanes End Inc

Lanes End Rd, MAP 2-1-71

State did not receive **ALL** of the information requested. They want complete dimensions for all existing and proposed structures on the frontage. Plans must include dimensions of all dock supports and support locations. Plans must show the structures relative to fixed points on the shoreline and show distances from the structures to property lines.

10. Pamela, David William Craig

3 Evergreen Way, MAP 62-2-10

Repair existing 6'x30' piling supported dock "in-kind". No change in size, location or configuration is proposed.

11. Thomas Leonard

20 Plantes Way, MAP 49-1-4

Repair or replace in kind an existing 856 sq ft dock supported by existing shoreline stone and wooden supports on an average frontage of 189' +- Prior to any work that is to be performed a turbidity curtain and floating boom will be installed and removed when work is completed.

12. Robert Baker

20 GWH, MAP 63-1-13

Remove and replace an existing crib supported dock consisting of 495 sq ft on an average frontage of 70', remove two existing standing jet ski lifts and replace with two floating lifts and repair/replace a 5.5"x14'x5' tall dirt retaining wall. A turbidity curtain and floating boom will be installed prior to any work to be performed and removed when the project is completed.

13. Dana & Carolyn Pope Irrev Tr

20 Caverly Point Rd, MAP 27-1-5

Repair existing dock structures and boathouse with no change in size, location, configuration type. Replenish existing beach area with 9 cu yds sand within a 510 sq ft area placed above legal full lake elevation. Reset (1) rock (5sq ft) that was dislodged and tumbled lakeward from the rock bank into the existing boatslip.

14. Ben & Lexi Hoffman

12 Forest Rd, MAP 14-4-1

State is requesting that the applicant provide either a) evidence that the location of the proposed permanent pier meets the criteria for the construction of a permanent structure or, b) revised plans for the construction of a seasonal docking structure.

Memorandum For the Record

From: Lawrence W. Gil Commissioner Tuftonboro Conservation Commission

Subject: Review and Comments to Nineteen Mile Brook 2019 Baseline Environmental Assessment Aquatic Biota and Water Quality January 9, 2020 Submitted by Normandeau Associates, Inc.

Date: January 19, 2020

The writer has reviewed the Final Report referenced above and respectfully provides the following comments, questions and observations. My comments are referenced by their respective location within the final report by Section and page number. Particular issues are highlighted and questions and or comments in ***bold italicized red***.

The goals of the studies were to determine any environmental changes in the watershed since construction and activation of the Wolfeboro rapid infiltration discharge and provide a new baseline environmental study. The proposal also included a review the Wolfeboro rapid infiltration discharge permit file, (Wolfeboro Rapid Infiltration Basin Facility (Whitten Site) Groundwater Discharge Site #200707014.), including any water quality data collected and reported as a permit condition, to evaluate water quality in the brook including any trends or other changes since activation of the rapid infiltration discharge. Permit Monitoring requirements for nutrients along with chlorides provided the largest data sets for analysis. ***For the purpose of the NAI report, emphasis was placed on the following parameters Phosphorus, Nitrogen and Chlorides, other parameters included dissolved oxygen, specific conductivity, pH and temperature.***

1.0 Introduction Page 2,3

A file review of the Wolfeboro groundwater discharge permit was completed in January 2019 and included collecting and reviewing, all of, the publicly available information located on the New Hampshire Department of Environmental Services Onestop Data Portal. Following the permit file review, Normandeau Associates, Inc (NAI) modified the proposed scope of work to include aquatic

habitat assessment, macroinvertebrate sampling, a fisheries assessment, water quality monitoring, and an updated review of rare, threatened, and endangered species.

The writer welcomed the review of the RIB files because it allowed for comparisons of data collected independently of each other at stations located in essentially the same locales at various times over a twelve year period (2007 - 2019). The presentation of the data in summary statements, figures and tables provides a picture across the Nineteen Mile Brook Watershed, particularly in the area most likely to exhibit potential impacts and influences of the RIB operations. It also allows for more questions, possible clarifications, interpretations and further studies.

The writer concluded the data sets as presented provide clear evidence that the Rapid Infiltration Basin operations are influencing water quality within Nineteen Mile Brook.

The writer further concludes that NAI assumed a too conservative interpretation of the respective data sets.

The Town of Wolfeboro and its consulting engineers and environmental consultants largely followed the requirements laid down by NHDES through Administrative Orders and the conditions of the Groundwater Discharge Permit.

Nineteen Mile Brook is classified as a Class B water. In New Hampshire, state surface water quality standards are identified in Env WQ-1700 Page 10

There are no numerical water quality standards for phosphorus in NH, or for nitrogen. **However, Env-Wq 1703.14 states that "Class B waters shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring" and also states "There shall be no new or increased discharge containing phosphorus or nitrogen to tributaries of lakes or ponds that would contribute to cultural eutrophication or growth of weeds or algae in such lakes and ponds."**

To offset the absence of numerical standards and to provide a measure of the importance of phosphorus and nitrate, NAI referenced, the EPA guidelines for Aggregate Ecoregion VIII, which includes northern New England and Nineteen Mile Brook (EPA, 2001). For total phosphorus, the recommended phosphorus

limit is 0.010 mg/L for rivers and streams and for total nitrogen it is 0.38 mg/L for rivers and streams. While these guidelines are not enforceable limits, they do provide guidance for assessing the state of rivers and streams. Extensive chloride data were collected as part of the Project's permit compliance monitoring. Page 14. In New Hampshire, state surface water quality standards are identified in Env WQ-1700. Chloride has an acute freshwater standard of 860 mg/L and a chronic freshwater standard of 230 mg/L, for the protection of aquatic life.

2.0 Wolfeboro Rapid Infiltration Discharge Permit File Review

Overview of Wolfeboro discharge site page 6-7

The RIB discharge site experienced performance issues shortly after the system began operating in 2009 with increased flows from pre-existing seep areas.

Shouldn't the "Western and Central groundwater discharge areas" be better described as natural pre-existing groundwater discharge areas?

The available data also show that total phosphorus was variable throughout the Site and that high levels of TP were documented at the control reach (Station 19MB-1) outside the influence of the discharge and also at multiple stations in the timeframe pre-dating the operation of the discharge. *A partial explanation for the exceedances might be the atypical heavy precipitation experienced during the years 2008 and 2009 coupled with construction of the RIB's, access roads and construction of the pipeline from the Wolfeboro effluent pond 2.21 miles along the Wolfeboro Electric Right of Way (ROW). Support for this is found in the NAI 2009 Baseline Report, and the Town of Wolfeboro RIB Status Report 12/06/2010 217070.01-221.*

Total phosphorus page 10

In the available water quality data for Nineteen Mile Brook, there were routine exceedances of the 0.010 mg/L TP threshold throughout the watershed and throughout the period of record from 2007 – 2017 (see Figures 4 & 5). They do not explain why TP at the reference station remained above the Aggregate Ecoregion VIII, recommended phosphorus limit of 0.010 mg/L for rivers and streams. The writer notes that outside of two data points for late 2007 and spring 2008, phosphorus remained at or below 0.05 mg/l at the reference station 19MB01

In the available water quality data for Nineteen Mile Brook, nitrate values were highly variable, with values at stations along the main stem of Nineteen Mile Brook generally below the 0.38 mg/L total nitrogen threshold, while nitrate values in the Western and Central Groundwater Discharge Areas tended to be much higher – typically in the 0.5 – 2.5 mg/L range. The available data show that nitrate levels had generally increased in the watershed since 2007 and particularly since the RIB discharge.

The writer notes how the parameters TP, NO₃ and Chlorides all increase sharply at the onset of RIB operations beginning in March 2009 Figures 4, 6 and 8 respectively. Station 19MB02 which is located on the mainstem and also downgradient of the Central Groundwater discharge Area has [NO₃] concentrations which track closely with 19MB21 up to RIB operations and then less so with higher values for the balance of the time period suggesting to the writer RIB influence. Figure 4 shows peaks in TP from Stations 10 and Station 8 each located at the top of the respective Groundwater Discharge Area(s).

Would you conclude that the combination of increased nitrate concentrations associated with the discharge as well as increases in phosphorus establish conditions which would likely contribute to eutrophic conditions somewhere downstream?

Please explain how to interpret the RIB influence that appears on Figures 5 and 7.

Figure 9 Chloride at GWP monitoring station 19MB-4 for 2007 – 2015 (from Wolfeboro, 2015) RBP Page 16

Station MB4 is located downstream of Whitten Pond and upstream of the Rt 109A Road Culvert. The Chloride concentrations clearly show the impact of the RIB discharge going from approximately 5 mg/l prior to RIB operations (2007-2008) to as high as 60 mg/l.

Is it fair to conclude that the RIB influence can be detected at station MB04 (Figure 9) page 16?

Is there any published chloride data in the literature showing adverse impacts to aquatic biota exposed to Chloride concentrations within the range currently shown for the RIB discharge?

3.1 Aquatic Habitat Assessment Results Page 20

Site RBP-2 (also referred to as Site 2) was accessed August 13, 2019 and is the closest to the RIB discharge area, where biological impacts would theoretically be greatest. The RBP metric scoring for this site was 163 of 200, indicating excellent habitat value for aquatic biota. This scores similarly to the upstream reference reach suggesting that there is no habitat degradation when compared to the upstream reference location.

Town of Wolfeboro RIB Status Report 40 12/06/2010 217070.01-221 Section 5.1.6.

Algae Growth in Nineteen Mile Brook Algae growth downstream of the GW discharge areas was studied in detail in 2010 and while there was increased algae growth, there was little evidence that there were significant adverse impacts as a result of this growth. Areas of most algae growth were limited to the area downstream of the Western Discharge. While this reports documents nitrogen levels coming from the RIB site, there have been other activities within the watershed that could be contributing to these levels. These activities include site disturbance from the construction of the RIBs and possible impacts from logging operations. Both of these two studies confirm increases in nutrients to the reach immediately downstream of the Groundwater Discharge

While neither of the studies documents or report exceedances of State Standards they do suggest RIB influence as a likely factor.

3.0 Aquatic Habitat Assessment thru 5.0 Fish Community Assessment page 36

Site RBP-3 (also referred to as Site 3) was accessed August 13, 2019 and located downstream of Whitten Pond and included a foot bridge crossing approximately one third of the way down and a road crossing/culvert at the lower end.

The writer respectfully suggests that this description be modified to include Rt 109A.

4.1 Macroinvertebrate Community Assessment Results page 25

Site 2 is the location adjacent to the RIB discharge; where a number of mussels were observed that are likely the Eastern pearl shell. A single specimen was found in the benthic sample from this site. *This species was not previously recorded in the baseline study of 2009. Is there ancillary information from field notes by the biologists to suggest a larger population or the presence of more mussels in the downstream reach?*

Page 22 Physical water quality characteristics were measured at each site including: water temperature, dissolved oxygen, percent oxygen saturation, specific conductance, pH, and general turbidity. These metrics were collected prior to macroinvertebrate sample collection. *How did these water quality measurements compare to those collected in 2008?*

7.0 Water Quality page 40

...we also collected stream stage elevations at the NMB-02 site in the RIB discharge area using a pair of Onset Hobo Water Level Loggers (one deployed in the stream and one as an atmospheric pressure reference). While the stream stage measurements were not included in our proposal, we felt the stream stage information would be useful for assessing flow conditions during the study. *The Town of Wolfeboro reported extensive flow monitoring and stream gaging as part Town of Wolfeboro RIB Status Report Ground Water Permit 20070014-W-001 Dated 12/06/2010 217070.01-221 Page 7-12. Was this data reviewed and or considered?*

7.1 Water Quality Sampling Results Page 41

Nitrogen in typical RIB effluent is expected to be in the range of 1.3 - 3.1 mg/L (ammonia + nitrate, Wolfeboro, 2015) and is limited in the most recent groundwater discharge permit to ≤ 10 mg/L for total nitrogen. Nitrogen levels at NMB-02 were documented at 0.4 – 1.5 mg/L, with one sample below the laboratory reporting limit (<1 mg/L). These values are considerably higher than the nitrogen values measured at the reference reach, are higher than the EPA guidance value of 0.38 mg/L, and within or below the lower range of the expected RIB effluent nitrogen concentrations.

Total phosphorus in wastewater effluent is not limited in the most recent groundwater discharge permit (NHDES, 2017) but according to the Town of Wolfeboro (Wolfeboro, 2015) is expected to be in the range of 0.1 – 0.6 mg/L in typical RIB effluent.

Comparison with nutrient data collected for Wolfeboro GWP Page 43

NAI compared data collected for the 2008 and 2019 baseline studies to the available Wolfeboro data (2007-2017). The Wolfeboro GWP data show a slight downward trend in TP concentration throughout the site from 2007 – 2017; and

samples collected by NAI for the 2008 study have comparable TP concentrations to the GWP data collected during the same timeframe. However, samples collected by NAI in 2019 have considerably higher concentrations of TP (by nearly an order of magnitude) at all sites (Figure 10; Table 12). There is no obvious explanation for why TP concentrations were consistently higher in our 2019 study than in the 12 years prior. Again, there is no obvious explanation for this discrepancy, although it could partially be explained by the small number of samples collected in the 2019 study (five monthly samples were collected).

The writer has concerns with the NAI report conclusions for the discrepancies between the three respective data sets. The writer suggests that NAI provide references for the analytical procedures employed vs the procedures used by the Wolfeboro consultants for their permit reporting compliance.

In the absence of any difference in the analytical procedures or degree of accuracy between procedures, the writer assumes the actual values lies somewhere between the two. In any case the increases are a cause for concern and continued monitoring.

The writer using data provided by, Dave Ford, Wolfeboro Director of Public Works, tabulated the data for TP, NO₃, Chlorides and Specific Conductivity collected at Stations 19MB01 (reference station), 19MB02 approx 100 ft downstream of the Wolfeboro/Tuftonboro town line closest station to proposed outlet flows from RIBs, 19MB03 outlet of Whitten Pond, and 19MB04 Brook inlet of box culvert under Rt109A. This data set is described as being Baseline preoperational collections beginning on 7/5/2007 until 9/9/2008. RIB operations were initiated on 3/3/2009.

Results are average concentrations (#) = actual number of samples

Station #	Cl mg/l	NO3 mg/l	TP mg/l	Spec Cond u/S
19MB01	4.5 (10)	0.075 (6)	0.038 (11)	46 (7)
19MB02	3.4 (14)	0.075 (11)	0.032 (12)	39 (11)
19MB03	3.9 (14)	0.065 (6)	0.034 (12)	43 (11)
19MB04	3.6 (14)	0.067 (10)	0.044 (12)	42 (11)

These data in the writer's opinion clearly establish the baseline conditions for these parameters from the upstream reference station downstream to the recovery station at Rt 109A as being the same. Subsequent water samples post operation establish increases in nutrients TP and NO3 but they do not establish consistent trends for either of the nutrients from the upstream reference station down to the recovery station. Chlorides and specific conductivity provide the clearest signal of RIB influence.

With respect to follow up studies such as being proposed by NAI the writer has concerns. As we know, the area around Whitten Pond was logged. The resulting runoff from the cleared land could certainly account for the changes in the pond chemistry and would not directly connect RIB operations as a significant cause if NAI can explain how this could be accounted for, or be able to isolate RIB influence. The writer is more concerned with addressing the differences reported for Phosphorus and to a lesser degree Nitrates between Wolfeboro and NAI. Second, assuming the RIB's are operational I think collecting in the off season would provide data when biological activity is at a minimum and should provide a "truer" picture of nutrient loading. The writer notes an order of significant increase in the numbers of fish captured in 2019 vs 2008 figure 14 page 54. Increases in nutrients would be expected to increase food sources and higher numbers of fish suggesting the need to continue some form of biological monitoring. (see Town of Wolfeboro RIB Status Report 40 12/06/2010 217070.01-221 Section 5.1.6.)