

TOWN OF LAMOINE

**Minutes of Planning Board Hearing  
April 29, 2014  
Lamoine Town Hall**

Hearing on additional information regarding MacQuinn Gravel Pit Expansion: Site Plan Review and Gravel Permit Applications – Harold MacQuinn, Inc (Map 3 Lots 31 & 33)

Planning Board Members

Present: Holt, Bamman, Gallagher, Donaldson, Tadema-Wielandt, Fowler (alt)

Code Enforcement Officer

Present: M. Jordan

Members of the Public

R. Davis, S. Davis, D. Schick, D. Jones, W. Brutsaert, L. Brutsaert, A. LaBossiere, K. Gaianguest, G. MacFarland, C. de Tuede, R. Gerber (Ransom Consulting, Inc.)

Applicant P. MacQuinn, S. Salsbury, E. Bearor, M. Deyling (Summit Environmental Consulting, Inc.)

Members of the Press - None

Chair Holt called the hearing to order at 6:34 p.m.

Holt read a description of the MacQuinn application history and process. See attached. His remarks stated that the goal of the hearing was to reopen the Public Hearing in order to hear the written testimony from Summit Environmental Consulting (Summit) and from the expert review of that testimony by Robert Gerber, Ransom Consulting, Inc. (Ransom).

Michael Deyling of Summit Environmental Consulting made an oral and visual presentation of the additional study performed by his firm regarding the hydrogeology of the proposed gravel excavation area. In particular, Summit's study addressed three questions:

1. What is the location and hydrology of the apparent "perched water table" that appears to feed the spring supplying the Cold Spring Water Company (CSW)?
2. What is the location and hydrology of the "deep water table" and how, if at all, does it interact with the water quality and supply of the Cold Spring Water Company?
3. What does a "water balance" analysis in the area of Archer's Brook and an adjacent unnamed brook tell us about the recharge area for Cold Spring?

Deyling summarized the findings described in detail in Summit's "Supplemental Hydrogeologic Assessment" (December 2013). Some information he provided was

updated from this report and in response to R. Gerber's request for further information/analysis in March, 2014.

Deyling's conclusions were:

1. We are now more certain about the location of the deep water table so that excavation operations can more safely maintain separation from this water table.
2. We located a "divide" in the deep water table at 88' elevation, approximately 1,000 feet to the west of Cold Spring, that indicates most flow under the proposed pit is toward the west, but that there is flow toward the east under Cold Spring that likely feeds springs and brooks found to the east. (See Figure 5)
3. We located the approximate westward edge of the silt-clay layer that functions as a perched water table (or "shallow water table). Wells show water sitting on top of this layer and no water beneath it. At PB4D, the layer is about 2 feet thick and Summit surmises that this means this location is very near the westward edge of the layer. (See Figures 2 and 3) Deyling noted that the applicant plans to move the proposed easterly pit boundary toward the west to provide 200' of setback from PB4D (or about 1,200 feet from CSW).
4. The water balance analysis revealed that the proposed pit area and the area surrounding CSW appear to provide substantial flow of water to Archer's Brook and the unnamed brook west of it. Summit found flow rates of over 50 gallons per minute in Archer's Brook. The withdrawal rate of CSW is in the vicinity of 12 gallons per minute.

#### Robert Gerber's Report and Testimony

Mr. Gerber confirmed the findings summarized above by M. Deyling. "You can assume the Summit analysis is more or less the situation", he said. He did, as well, propose two possible conditions that the Planning Board should consider:

- a. one requiring further monitoring of the deep water table when excavation levels reach 15 feet of the currently identified levels of that table;
- b. one that would require alteration to the excavation plan if the silt-clay layer is encountered further to the west of where it is now presumed to lie. (See p. 3 of Gerber's report for full wording.)

Gerber presented in his report a more complete mapping of the hydrology measures in the area of Cold Spring than was included in the Summit report. (See Attachment 3.) In his judgment, Cold Spring is fed from two directions: the smaller contribution comes from the west (the proposed pit area); the larger contribution comes from the south, originating in the area of the bog across Mill Rd.

Gerber, in his report, also addressed points raised by Dr. Willem Brutsaert (some of which he agreed with and some he did not agree with). He asked if M. Deyling agreed with his responses to Brutsaert. Deyling indicated that he did.

#### Questions from the Planning Board

Board members asked for clarification on several points of the presentations. New information included:

Holt: If you were to drill through the clay layer at CSW, what would you encounter? Is there any chance the deep and shallow water tables might join in that vicinity?

Deyling: Very little chance that this would be the case. The two tables likely meet to the northeast of that point where the brooks and springs are.

Gallagher: What effect will excavation have on the deep water table (dwt)?

Deyling and Gerber agreed that excavation will shorten the time it takes for precipitation to reach the dwt and that there may be more fluctuations in the dwt levels (on the order of 2 feet), but that it will have little if any effect on the quality of water given the filtration capacities of the material.

Tadema-Wielandt and Bamman: To what extent will excavation above the clay layer influence the runoff into the shallow water table?

Deyling: Not much

Fowler inquired about the possibility that the CSW recharge area extends beyond the arced "Area A" on the maps.

Deyling and Gerber agreed that there is a good possibility that CSW is recharged from beyond Area A, and quite likely to the west and southwest, if the "divide" runs as they suspect.

Fowler: Should Area A be protected from all development?

Deyling: "Yes, anything you can do to protect a spring is a good thing."

Donaldson to Gerber: Are you comfortable with the applicant's plan to move the excavation boundary 200' to the west?

Gerber: yes

Bamman: In summary, are you saying that you don't know for sure how CSW is recharged, but there's a reasonable chance that this pit will not affect it?

Deyling: Yes. We are not certain, but it's very likely and we are now better prepared to maintain the separation between excavation and the water tables.

### Questions and Comments from the Public

W. Brutsaert presented slides and statements of his professional opinion. Among them:

- a. The groundwater divide runs in a different direction than Summit suggests, following one of three "spurs" that "push water" down from the top of the hill directly toward CSW and on toward the bog. He cited an SW Cole study that found that water in the bog flowed southward. This groundwater divide is shown on a geologic survey map by the state of Maine.
- b. The "energy" delivered by the hill is largely responsible for the healthy flow rates of water in the entire area. Excavation will radically reduce this energy and thus the flowage.

Dr. Brutsaert concluded that “no one must be permitted to” change the size and nature of the hill as it will irrevocably affect that water supplies. He reiterated that the aquifer under the proposed pit is “the sole source water supply for Lamoine” and that “we cannot risk” interfering or damaging it.

Deyling responded that land surface contours often indicate or mimic the subsurface contours of bedrock, as Brutsaert contends, and thus that water divides tend to lie under ridges. But not in this case; Summit’s data shows the divide elsewhere. Brutsaert noted that “you cannot tell” that for sure; you “don’t have enough data”. Brutsaert also noted that the flow at CSW is very consistent, year in and year out, which suggests that it is fed by the deep water table. (If it was fed solely by the shallow water table, it would fluctuate a lot more with rainfall and seasons.). Gerber agreed with Deyling on this matter, referencing his Attachment #3. He noted that the bog was at a “high position” and that water from it could flow both north and south. He reiterated his contention that the steady flow rates at CSW likely results from the large amount of water coming from the south; if Brutsaert’s contention that it largely comes from the west/northwest were the case, we would see much greater fluctuations in the flow rate.

Tadema-Wielandt asked, If the supply of water diminishes at CSW once the pit is under way, could we conclude anything about the pit’s contribution to this?

Gerber: No.

Holt described the next steps for the application review process. At the regular May meeting on May 13, the Board will discuss whether it is prepared to undertake the “standards review” process.

Donaldson asked if the applicant had, or intended to, revise the existing application materials. He stated his preference to have all materials current and in writing prior to the meeting. Otherwise, he would not be ready to begin the review process.

Hearing adjourned at 8:12 p.m.

Respectfully Submitted,

Gordon Donaldson, Secretary