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October 3, 2022

Concord Zoning Board of Appeals
c/o Elizabeth Hughes, Town Planner (ehughes@concordma.gov)
Heather Carey, ZBA Administrative Assistant
141 Keyes Road
Concord, Ma. 01742

Re: Quarry North Rd LLC, application for a Special Permit under Sections 10, 11.6 and 11.8 of the Zoning Bylaw for a Planned Residential Development for six units

Dear Concord Zoning Board of Appeals:

I write to supply comments regarding the above-referenced application pending before the Zoning Board of Appeals. I do not have any particular position about the proposed Concord houses. The purpose of my letter is that I believe that Concord Town Boards need additional, information supported on the record in order to make an informed decision on the application regarding septic leachate discharge proposed as part of the application.

By way of brief background, among my graduate degrees, I have a Masters Degree in City and Regional planning from the University of California, Berkeley. I am a Professor of Law at one of the Boston law schools. I am the author of seven published books including a much-used book on environmental law and land-use permitting, now in its 2022 9th edition.

The Town Protected Resource Interests

The Town interests are two-fold: First, the Town owns land adjacent to this proposed Concord development. Second, the well supplying Town fresh water is proximate to the proposed Concord development property, from which well future availability of a sufficient quantity of clean Concord well water is essential to meet Concord's fresh water requirements. Potential avoidable environmental impacts on White Pond also are of concern to Concord Boards and Commissions given that White Pond was closed by the Town periodically between 2016 and 2022 due to toxic algae associated with phosphorous and nitrogen emissions reaching White Pond.

As shown on the map below prepared by consultants for the Town, this proposed PRD development (shown as the white colored parcel on this map wrapping around the light green finger of land in the lower right corner) abuts multiple light green-colored Concord Town-owned land containing Concord's water supply well marked by the red circle southeast of White Pond, and also abuts the Town-owned White Pond Reservation land which is protected

to supply fresh water for Concord water supply. On p. 5 of the September 23, 2022, Concord Town Planner Report available on the ZBA website, it states “The proposed common open space [on the North Quarry development parcel] is part of the recharge area and Zone I for Concord's existing municipal well to the north.” Each of these Town-owned parcels (in green on the map below) are designated by the Town and in prior studies as necessary for groundwater recharge and drinking water supply.



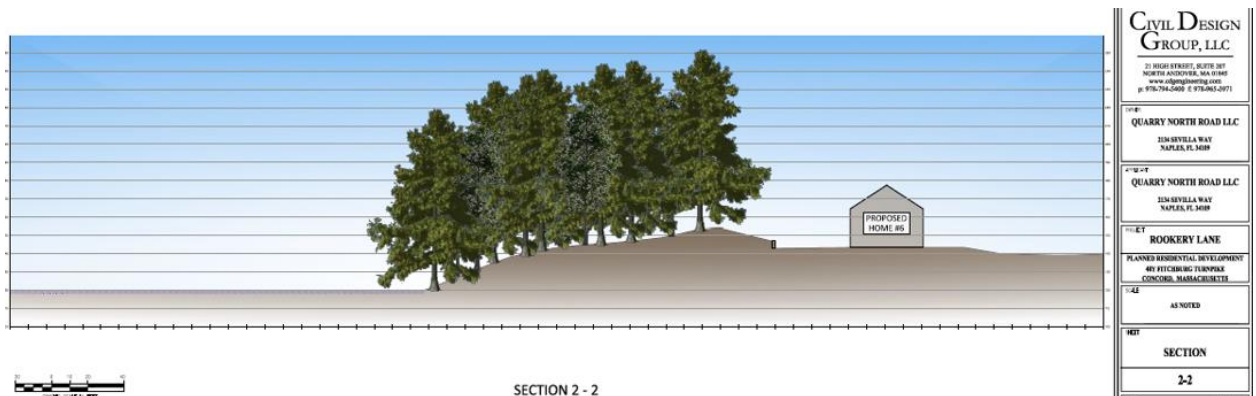
The second map below, prepared by a consultant for the Town, shows that the proposed North Quarry PRD development (shown in the lower right corner as the white parcel wrapping around the light green finger of land) itself contains and existing wetlands on the entire perimeter of its owned-property north side toward the Concord drinking water well (wetlands shown on this map as the shaded/marked area) and also immediately abuts and touches wetlands on the Concord Town property that are protected for groundwater recharge and drinking water supply. These wetlands resource areas are protected by both Town of Concord and state law pursuant to the Wetlands Protection Act.



Elevations of Home Septics and Concord Fresh Water Supply

The below diagram submitted by the developer showing one of the 6 proposed new units, appears to show that the wetlands are the low area below the elevation of the house. From data submitted, the Town groundwater well appears to be at approximately 130 feet of elevation; the proposed development appears to be at approximately 150 feet of elevation. The September 23, 2022, Concord Town Planner Report available on the ZBA website notes a steep drop-off from a proposed Concord dwelling into the wetlands with “very steep wooded slopes on the west, north and east down to wetlands.”

Concord Boards need information of formal record demonstrating that no septic leach field effluent will flow directly or indirectly into Wetland Protection Act protected resource areas or into any of the Concord Zone II or Zone I Water Protection zones that have been identified adjacent to the proposed development. Therefore, detailed accurate information about the entire development parcel rather than only parts of it, the wetlands area, and all adjacent properties is necessary to understand the dynamic situation regarding septic flows that could or will occur in the vicinity of designated Water Protection Zones and toward these protected Town properties.



The developer's development plan shows keeping as open space the northern acreage of its Concord 15.99 acre development parcel – However, the second map above shows that this northern area of the developer's own parcel already is designated as existing wetlands that cannot be altered without prior permission from the Concord Natural Resources Commission (NRC). These wetlands on this map adjoin and/or are part of both the Town parcel containing the Town drinking water well and the Water Protection Zones.

While the developer has submitted in a letter that the state Wetlands Protection Act *presumes* that wastewater disposal systems located horizontally at least 50 feet from such resource areas, including public water supply, will protect those areas, this is not the end of information gathering by Town Boards. Nor does a presumption hold absent supporting evidence and become the conclusion as to potential impact. This presumption is the *beginning* of Town Boards' analyses before there is case-by-case analysis of relevant facts. Once a Town Board's case-by-case analysis of an application begins, especially where a new water pollution source is proposed to be sited near a sensitive pre-existing Concord drinking water supply system, this presumption yields to actual data that necessarily must be gathered and analyzed. For protected Town water resources, Town Boards need to consider whether it is possible or not that additional nitrogen or phosphorus loading or other wastewater flow directly or indirectly could flow to any Town-owned water supply resources from proximate new development.

This comes into sharper contrast where an advanced wastewater treatment system already is part of and included in the larger development project of which these Concord parcels are a part. The September 23, 2022, Town Planner Report, available on the ZBA website, notes facts that make this location distinct from the typical site seeking permits to site septic systems – It notes that "...with the north and east side of the Site within the Wetland Conservancy District. The entire Site is located within the Groundwater Conservancy District." This location of septic leachate, in lieu of connection to the wastewater treatment system, requires sufficient individual site data to analyze the future flow and travel of septic wastewater here.

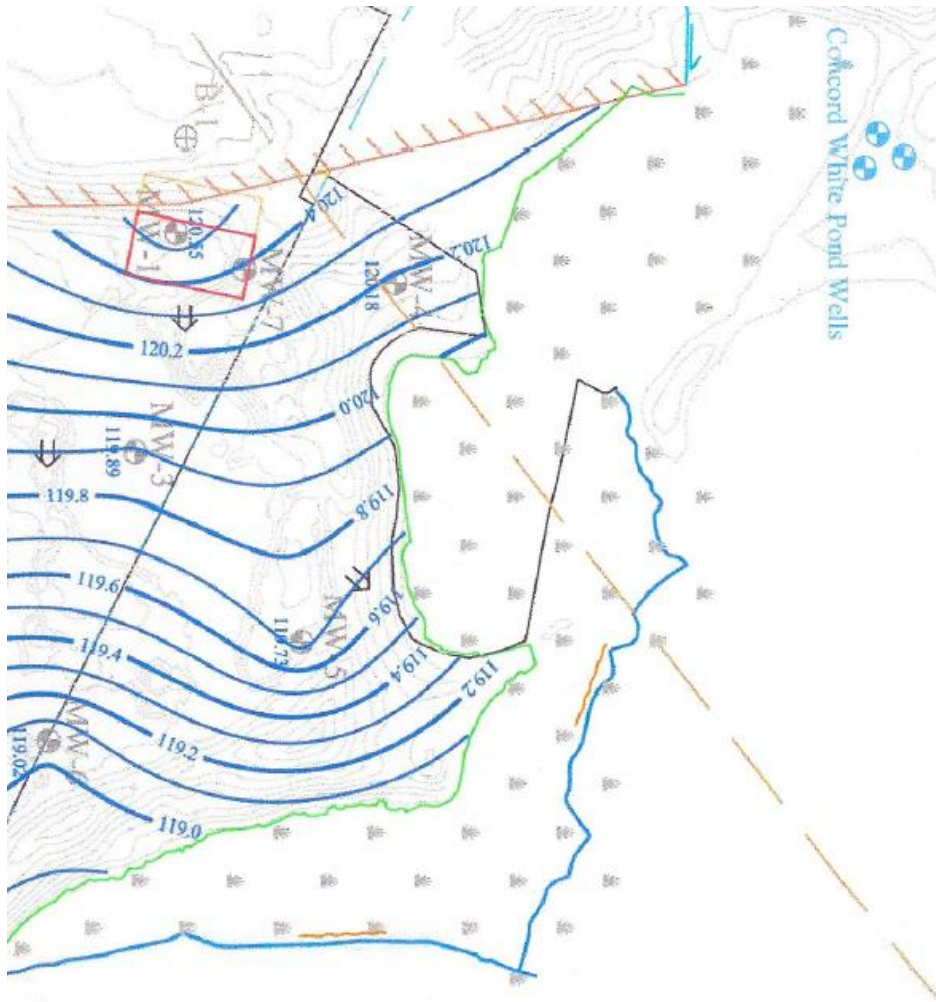
The data supplied by the developer's consultants does not map groundwater flow in these zones, and the developer's consultant states that even what it has mapped may not be adequately sampled to rely on (see below). Town Boards need to be provided with and have on the record before making a decision sufficient objective information, make a detailed case-by-case analysis, and have sufficient factual support regarding issuance of a Special Permit. Any applicant bears the burden of proof before Town Boards, to demonstrate that a Special Permit should be granted based on reliable, objective evidence. Here, more evidence seems to be necessary for Town Boards to do that analysis on the record, as discussed in the next section below.

More Factual Data and Detail Needed

To make adequately informed decisions about potential future impacts on the Concord Zone I and Zone II Wellhead Protection Areas and the Wetland Conservancy District, and the future capacity of Town wells to satisfy future Town clean water requirements, the Town needs additional reliable data and information regarding the development parcel and the Town parcels to determine potential direct or indirect wastewater flow from the adjacent development parcel proposed septic systems.

The ZBA file on this matter contains a September 12, 2022, letter on behalf of the applicant from William Henchy to the Concord Zoning Board. This letter contains a document titled "Working Figure. Sudbury Wells and White Pond Wells Zone IIs." This shows that the property proposed for development is within the Zone II Wellhead Protection Areas for both the Sudbury and the Concord water supply wells. In fact, the Concord Zone II Well Protection Area is shown to actually bisect and run through the Concord property proposed to be developed.

This September 12, 2022, letter contains and attaches another document that is labelled as a Groundwater Contour Elevations map, and which is reproduced for reference in the next figure below. Groundwater flow does not stop at property boundaries, although there is no off-site data. Understanding completely the precise groundwater flow on both the proposed development land and onto the adjacent protected Town-owned and Town-protected lands is essential for Concord Boards to make informed decisions on a complete record.



The map above supplied by the developer stops mapping the groundwater contours for 4 of the 5 Concord subdivided properties proposed for development and their proposed septic system in their northern sides (on the right side on the figure as positioned above), so one cannot determine elevation into the marked wetlands that abut the White Pond Well and include areas protected in the Concord Zone II and Zone I Water Protection Zones. The area that is mapped in the contour map above, setting aside what the consultant states about potential lack of accuracy of its data regarding actual elevations (see below), covers approximately 1000 feet East to West, but does not continue the elevation contours north into the existing wetlands either on the property or on the Town property immediately abutting it. This map above shows a decrease in elevation in that mapped East to West expanse of approximately 1 foot across approximately 1000 linear feet running East to West. Across a horizontal distance of approximately more than three football fields, a change in groundwater elevation of one foot is minimal and leaves inconclusive a complete understanding of groundwater flow.

Concord Boards need sufficient information to be able to determine whether these wetlands could or could not be groundwater conduits for septic system leachate in or through

these protected areas. The groundwater contours need to be known and mapped for the entire portion of the development property, into the marked Wetlands Protection Area property to show groundwater contours on all adjacent properties (much of which are within the Zone II or Zone I groundwater protection zones for the Concord White Pond well).

Moreover, regarding the accuracy of the map attached to Mr. Henchy's letter: It shows that six test wells were advanced to estimate the groundwater contours beneath the 15.99 acres of Concord development property east to west, but not to the north to include the critical Town-owned and protected land containing the Concord White Pond water supply well. The map supplied by the developer's attorney in the September 12, 2022, letter on its face states a warning disclosure as to its accuracy made by the consultant who prepared it: *"Groundwater contours are based on widely spaced well locations and may not reflect actual groundwater elevations."* Town Boards need to obtain more engineering information to:

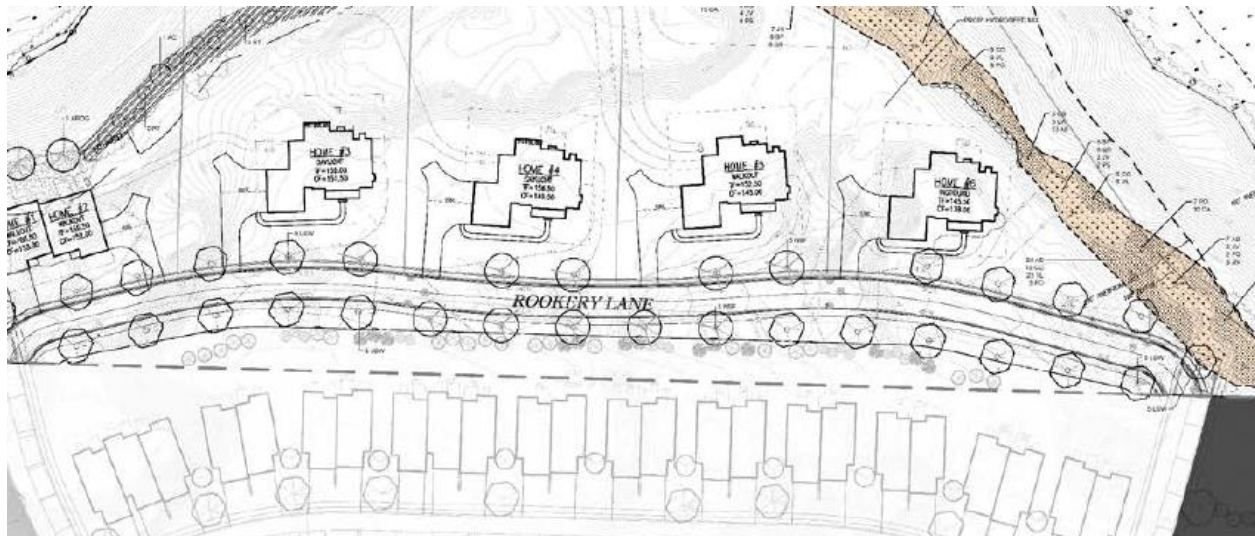
- Obtain more precise detail than obtained from these *"widely spaced well locations"* over 15.99 acres which show minimal contour change and flow across these multiple acres
- Obtain groundwater engineering information which is detailed enough to give Town Boards a complete record of potential groundwater flow post construction
- Include contours and flows regarding the key wetlands areas on the development property itself and on the extensive adjacent wetlands on Town-owned properties protected by the Concord Natural Resources Commission and ZBA for Concord water supply

Accurate information needs to be complete enough to show groundwater flows from the proposed Concord septic leach fields onto all adjacent properties and is needed for Concord Boards to make informed decisions on permits based on reliable evidence on the record.

A wastewater Treatment System Option

The developer designed and is installing a large state-of-the-art wastewater treatment facility for the 274 units originally proposed on the Sudbury side of this unified development which directly abuts the Concord portion of this development. All 274 Sudbury and 6 Concord units should be able to be physically connected to, and be served by, this centralized new treatment facility, had the developer chosen to include the Concord properties among those it chose to connect to the treatment system. Had it chosen to do so to connect 6 of the Sudbury units to septic systems, those Sudbury unit septic systems could have been located substantially farther away from the Concord drinking water well. It is up to the developer whether to design its entire project on this parcel to leave space for the 6 now-proposed Concord units to be connected to its large wastewater treatment system. The map below, supplied by the developer, shows proximity of the Sudbury and Concord dwelling units and how it would be possible physically to connect these six additional Concord dwellings to the wastewater system serving the other units of this same development.

Immediately across that street (Rookery Lane) are dozens of other of the Sudbury multifamily building units (the rectangular buildings at the bottom of the applicant's Landscaping map below on the south side of Rookery Lane, with the 6 Concord dwelling units on the north side of Rookery Lane) being served by the developer's wastewater management system, as shown below. The wastewater system conduits are directly across Rookery Lane from the proposed Concord units.



The developer already has submitted that it is taking extra steps now at the request of Concord and Sudbury, to install more utility and water efficient appliances, which will use water more conservatively and correspondingly should allow the wastewater treatment system of this size to accommodate a very small increase of effluent from these 6 proposed additional Concord units.

If there is reliable data showing that septic leachate from the 6 proposed Concord properties could not reach the Concord protected zones, their approval is logical. If evidence and data, once obtained, shows that there could be impact to the protected areas from the proposed septic system locations and operations, with the same developer's wastewater treatment system bordering Rookery Lane on which the Concord dwellings would be located, it is logical to require connection to this new wastewater treatment facility in this development owned and constructed by the same single developer on the same consolidated development parcel. Wastewater facility interconnection is straightforward now at the construction stage, although deciding about later connection to a wastewater system becomes more problematic once separate septic systems are constructed and the developer sells the Concord units to six different new owners.

The wastewater system physically extends to and serves multiple units which abut Rookery Lane on which the 6 Concord units will be located. The physical pipe infrastructure handling wastewater will be already there to carry away wastewater to be processed. The fact that this private wastewater system is located in Sudbury is not an issue: Sudbury is supplying

the water that becomes wastewater from these Concord units, as noted in the September 23, 2022, Concord Town Planner Report specifying that the Concord houses will be served with “...water service from the Sudbury Water District.” Where Sudbury is:

- supplying the water input into these 6 Concord dwellings as part of the development,
- which water input will become the wastewater effluent from these Concord dwellings,
- and the wastewater treatment system conduits are located immediately across the narrow Rookery Lane from these six proposed Concord dwelling units,
- it follows that those 6 Concord units could have been proposed in lieu of other units in the development to have their wastewater managed and treated by the more advanced system owned by the developer to serve the entire development

Of note, if not connected to the wastewater treatment system for some reason, the septic leach fields now proposed to be placed between the 6 Concord dwelling units and the Zone II Protection Area and wetlands, could be located further away from these resources: Septic leach fields alternatively could be placed on the south side of the 6 subdivided Concord properties adjacent to Rookery Lane, which would move their septic effluent discharge farther away from the Concord Water Protection Zones and resources.

Concord Board Decisions

Concord Boards need to consider and add conditions to their orders to control potentially long-term and irreversible impacts on protected wetlands and Town-protected Water Resource Zone areas. With the existing Concord Zone II Wellhead Protection Area already including a portion of, and actually bisecting, the proposed Concord development parcel in the pending application, the issue presented to Concord Boards is *not* the static issue of whether the applicant might be able to locate the multiple proposed additional Concord septic leach fields some feet over/outside the line of the existing protected Concord Zone II Wellhead Protection Zone or in the buffer zone. Alterations are proposed to, and leach field siting is proposed in, the resource buffer zone, which will require both an Order of Conditions in response to the Notice of Intent, as well as raise issues regarding conditions in a ZBA Special Permit. The Issue before Boards is: Could proposed septic system leachate migrate directly or indirectly into the Wellhead Protection Zones?

The Concord ZBA. Concord Boards are charged to make sure that any permits contain conditions and requirements to protect key resources. A Special Permit is necessary when a development proposal includes development elements or provisions and impacts not allowed by right. Special Permits, if granted, routinely include numerous related conditions to protect Town resources and watershed resources to ensure no interference with these resources results from a development not otherwise legally allowed by right.

An appropriate condition of the ZBA Special Permit could require that it and other Town Boards and agencies must first determine that (1) either these 6 units will connect to the development’s wastewater treatment system in lieu of septic leach field wastewater discharge, or (2) if not such wastewater system connection and septic systems are proposed, that there is

no risk of any septic system leachate reaching any of the protected Town lands or any Zone I or Zone II Water Protection Zones.

The Concord Natural Resources Commission (NRC), pursuant to the Wetlands Protection Act, exercises broad authority for developments or alteration in resource areas and buffer zones. As identified in the most recent Town Planner Board report: “The Applicant is proposing some development in the 100-foot wetland buffer for the construction of the duplex unit and the leach field for Unit B. The Applicant has submitted a Notice of Intent with the Natural Resources Commission.” The Concord Natural Resources Commission exercises jurisdiction over this adjacent Town property protected under the state Wetlands Protection Act, and handles all Notices of Intent and Orders of Conditions regarding any development or alteration affecting these areas.

As set forth above, there are options given the existing wastewater management system for this development that implement “best practices” compared to alterations that might include siting a septic leach field in the buffer zone over which the NRC has plenary jurisdiction. An Order of Conditions in response to the Notice of Intent filed with the NRC for this work, if now-missing data shows that leachate could reach the Concord Water Protection Zones, logically would include related conditions regarding redirecting the leachate, moving the septic leach fields farther away to the south sides of each parcel, or incorporating connection of these units to the project’s wastewater treatment system serving the entire development owned by the developer which will already be in place serving multiple units on the other side of narrow Rookery Way on which the 6 Concord units would be sited.

The Order of Conditions of the NRC in response to the Notice of Intent will address the wastewater issue prior to development. Of note, the Concord Natural Resources Commission [as the “issuing authority”] has authority pursuant to 310 C.M.R. 10.02(2)(d) to order the abatement of future negative impacts of septic leach fields affecting these protected areas Town drinking water Zones related to this development, even regarding those of the proposed leach fields that are to be located somewhat outside the buffer zone:

“10.02: Statement of Jurisdiction...

(d) Activities Outside the Areas Subject to Protection under M.G.L. c. 131, § 40 and the Buffer Zone. In the event that the issuing authority determines that such activity has in fact altered an Area Subject to Protection under M.G.L. c. 131, § 40, it may require the filing of a Notice of Intent and/or issuance of an Enforcement Order and shall impose such conditions on the activity or any portion thereof as it deems necessary to contribute to the protection of the interests identified in M.G.L. c. 131, § 40.”

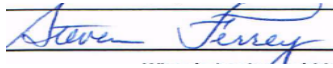
Such later remedial authority is not the best way to proceed on this matter; Boards will make decisions now on the Notice of Intent and Special Permit and other applications before them. Concord Boards should not wait years to discover negative or irreversible future impacts to protected Town Water Protection Zone resources and at that point have to restrict septic system operations then owned by six different Concord residents who purchasing these 6 new

homes along with their septic systems after the developer no longer owns these units. All Concord Boards need to have enough reliable information on the record in these matters in order to consider potential impacts now.

To make these decisions, Concord Boards need to request and obtain sufficient, reliable, and accurate information now, that does not yet appear to be on the record.

I hope that this is helpful as you obtain a sufficient record to support decisions on these matters.

Respectfully submitted,

A handwritten signature in blue ink that reads "Steven Ferrey". The signature is written in a cursive style and is positioned above a horizontal line.

Steven Ferrey

Cc: Delia Kaye, Natural Resources Commission, dkaye@concordma.gov
Mary Hartman, Select Board, mhartman@concordma.gov