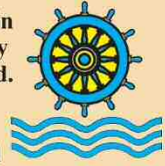




HydroQuest

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October 4, 2022

Carol Smith, MD, Commissioner
Ulster County Dept. of Health
239 Golden Hill Lane
Kingston, New York 12401

Ms. Becky Bertorelli, Planning Board Secretary
C. Howard Post, Chairperson and Planning Board Members
Town of Saugerties
4 High Street
Saugerties, New York 12477

RE: Public Water Supply Development: Recommendation to Postpone Aquifer Testing and Review Terramor Well Testing Protocols

Dr. Smith and Planning Board Members:

Terramor aquifer testing should be postponed until after the public, Ulster County Department of Health, and the Town of Saugerties Planning Board have had adequate time and opportunity to review project protocols and the issues raised in this letter. We seek your support in this matter.

I am a hydrogeologist, NYS licensed Professional Geologist, hydrologist, and cartographer with forty-one years of professional experience. This letter provides concerns and recommendations on behalf of Citizens Against Terramor Overdevelopment (CATO) regarding the proposed Terramor glamping project in the Town of Saugerties, New York. Rationale and justification are provided for postponing project well testing scheduled to begin tomorrow on October 5, 2022 at 8:00 am. The purpose of the proposed well testing, although not stated in information available to CATO, is to quantify the safe yield of wells as the foundation of a public water supply and to assess potential offsite impacts to surrounding homeowner wells.

Review of both Real Property License Agreements (former and revised) provided to Mark Pisani on October 3, 2022 accents a number of issues that, together, point out the need to postpone aquifer testing until they have been thoroughly reviewed and addressed. Failure to address these issues would likely result in substantive hydrogeologic concerns that might negate the veracity of testing protocols and testing methodology, question the duration of aquifer tests, expose the lack of sufficient offsite monitoring well data, and raise questions regarding hydrogeologic interpretation and conclusions. These issues include:

- Sonic water meters should NOT be used, unless they are used to provide a means to verify the accuracy of continuously monitored water level measurements collected before, during, and after well tests by continuously recording pressure transducers. Transducers may be programmed to record water levels at set, frequent, intervals (e.g., 10 minutes). Continuously recorded water level (pressure) data may then be professionally interpreted to determine such things as static groundwater level, homeowner water use, any impact

stemming from production well testing, and aquifer recovery follow pumping cessation. Sporadic, infrequent, water level measurements taken with sonic water level meters will be of limited value in assessing potential production well impact on homeowner wells. As written, the agreement provided to Mark Pisani, and presumably others, should not be signed because it implies that the method of monitoring homeowner well water levels would be sufficient to make informed decisions regarding offsite groundwater impact;

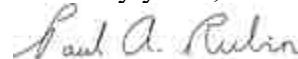
- Each aquifer test should be conducted for at least 72-hours, not only 24-hours. Testing of proposed site production wells should be conducted at constant rate discharges for at least 72 hours as required in NYSDOH Part 5, Subpart 5-1, Appendix 5D Public Water Systems, Table 2. Deviation from 72-hour testing is not advised due to the anisotropic character of the fractured bedrock aquifer, unknown depths and saturated aquifer thicknesses of homeowner wells, known well water quantity issues locally, and reported low well yields in the area. It is important to fully stress the aquifer during project water supply testing;
- Based on Kimberly Whites' 10-03-22 emails to Mark Pisani, two or three aquifer tests are scheduled to occur between October 5 and October 13, 2022. No information is provided regarding which wells will be tested either individually or simultaneously or at what constant rate discharges. Similarly, for example, the lack of disclosed testing protocol does not allow consideration of whether all four project site wells not being pumped will be monitored before, during, and after production well pumping. Empirical water level information recorded continuously in site monitoring wells is an important component of hydrogeologic interpretation in anisotropic aquifers. Lack of available test protocols makes it impossible to evaluate the adequacy of the proposed tests;
- A copy of the planned aquifer testing protocol should be provided to the public for review and comment prior to test initiation. The protocol should include a map that portrays site wells that will be tested and homeowner wells that will be monitored, as well as the rationale for selection of the number and locations of onsite and offsite wells. All particulars relating to project testing protocols, test duration, and onsite and offsite monitoring should be fully transparent to the surrounding community, not just to a select number of offsite homeowners;
- Reference to Exhibit A (“*a drawing identifying where the investigation will be undertaken within the Well Test Property*”) on Mark Pisani's first Real Property License Agreement was omitted from a later revised agreement. Again, transparency of all aquifer testing particulars should be provided to the public for review and comment;
- Homeowners that were only recently provided with License Agreements should be given adequate time for both legal and hydrogeologic review before they sign the contracts provided to them. Mark Pisani, for example, was provided with a contract for signature only 1.6 days prior to the planned startup of aquifer testing;

- It is not clear if the surrounding community and/or individual homeowners were provided with sufficient information and notice regarding the near term planned aquifer tests;
- Homeowners that have experienced water quantity problems either during previous or current site well testing (e.g., step drawdown testing) or independently of testing should be included in offsite homeowner monitoring well selection. This requires investigation prior to drafting the aquifer test protocol;
- Based on emails to Mark Pisani, it appears that only four or five homeowner wells will be monitored during well testing. Reference to attached Figures 1 and 2 document the presence of a large number of homes within 1000-feet and 1500-feet outward from the project area. Additional homeowner wells should be monitored;
- A representative set of homeowner wells should be fitted with transducers to monitor water levels before, during, and after aquifer testing to obtain static, drawdown and recovery data (i.e., many homeowner wells should be selected for monitoring associated with Terramor aquifer testing). Many should lie within 1,000 feet of the project boundary (Figures 1 and 2) and should include wells encompassing all major compass directions;
- Include the Haeberer well among selected offsite homeowner wells. This well has known water quantity issues; and
- The Real Property License Agreement states “*the results of the investigation will be reported to the New York State Department of Health, the Town of Saugerties and **may be provided** to the Owner, if requested ...*” (Emphasis added). The wording should be changed to “*will be provided.*” All data, results, and hydrogeologic interpretation should be provided to those homeowners whose wells were monitored.

Terramor aquifer testing should be postponed until after the public, Ulster County Department of Health, and the Town of Saugerties Planning Board have had adequate time and the opportunity to review project protocols and the issues raised in this letter. We seek your support in this matter.

By way of this letter and in the spirit of transparency regarding testing particulars, Terramor project heads could determine to postpone aquifer testing until the issues raised here are fully addressed.

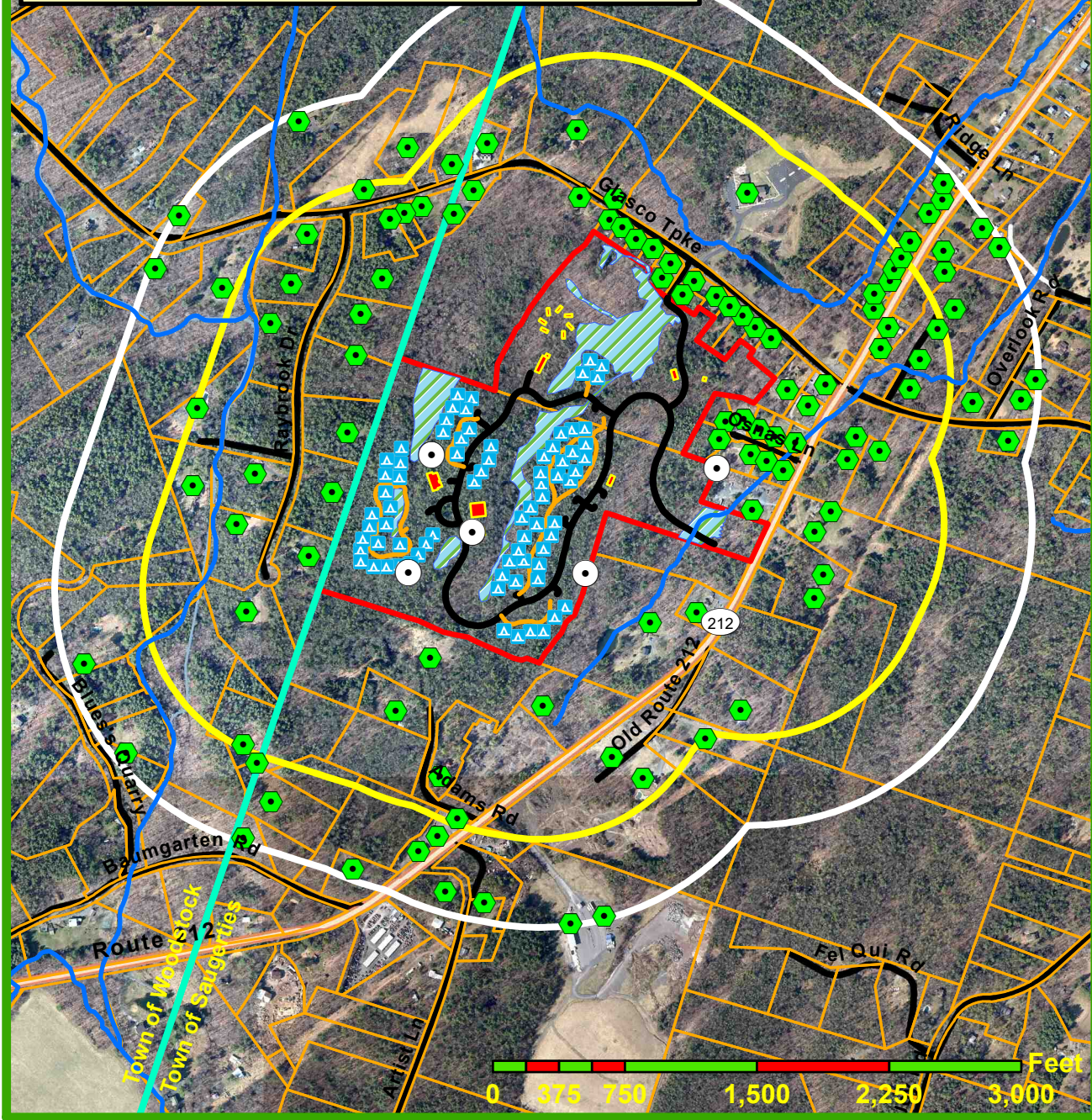
Sincerely yours,



Paul A. Rubin
Professional Geologist/Hydrogeologist

Cc: Daniel J. Tuczinski, Esq. (O’Connell & Aronowitz; Attorneys at Law)
Kimberly White (KOA); Project Manager, Terramor Outdoor Resorts

Proposed Terramor Project Area and Surrounding Residential Land Use



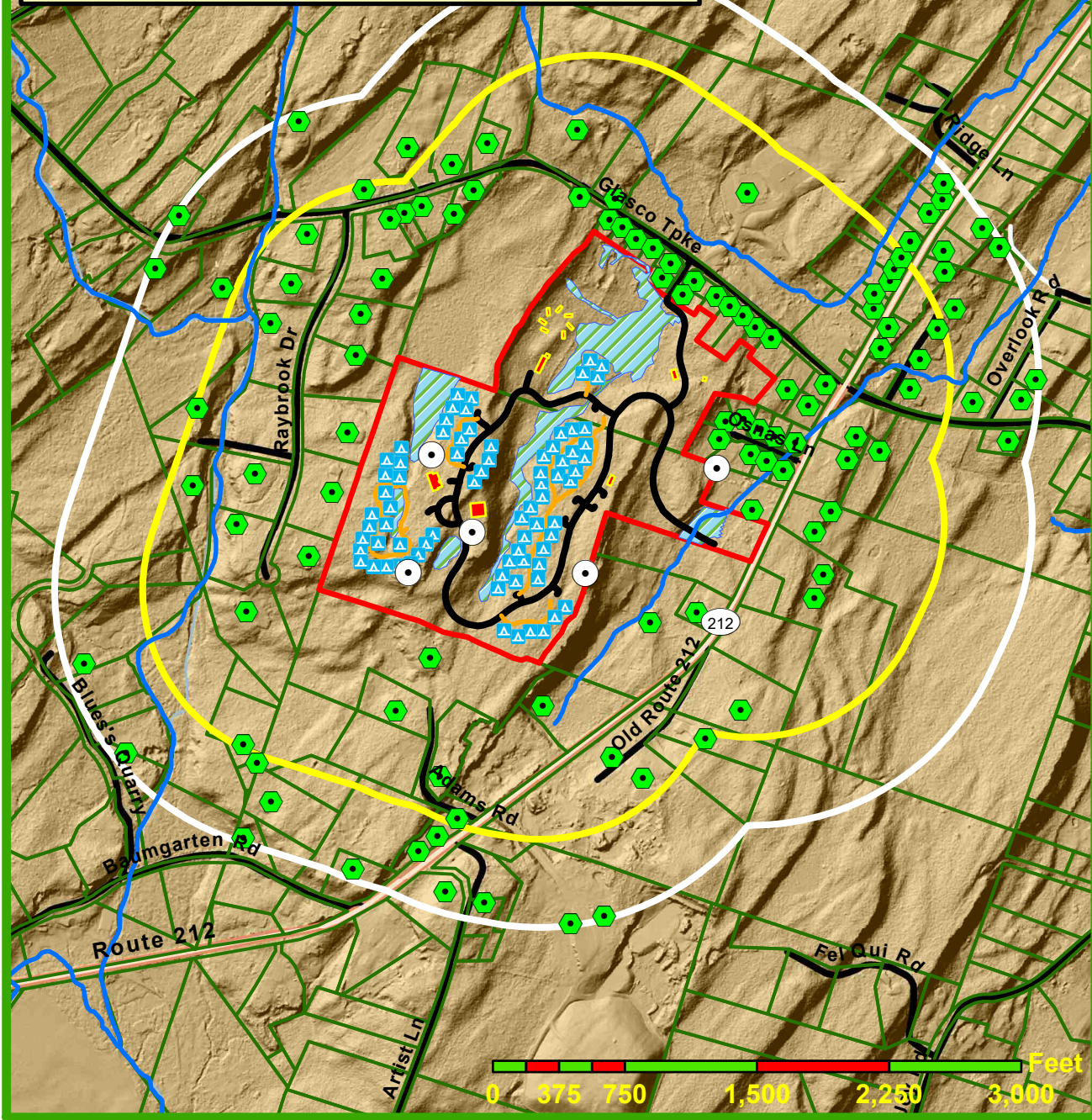
Legend	Map Date: 9-21-22	HydroQuest Graphic
 ~ Terramor Project Boundary	 Terramor Roads	 Wetlands
 Site Wells	 1000-Foot Outward From Project Area	 1500-Foot Outward From Project Area
 Tent Sites	 Assorted Project Buildings	 Tax Parcels (Borders Approx.)
 Offsite Houses & Large Buildings		

2016 Imagery



Figure 1

**Proposed Terramor Project Area
and Surrounding Residential Land Use**



Legend **Map Date: 9-18-22** **HydroQuest Graphic**

~ Terramor Project Boundary	Terramor Roads
Site Wells	Wetlands
Tent Sites	1000-Foot Outward From Project Area
Assorted Project Buildings	1500-Foot Outward From Project Area
Offsite Houses & Large Buildings	Tax Parcels (Borders Approx.)

N

Figure 2