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February 6, 2003

Carmine Mele, Chairman and Planning Board Members
Town of Gardiner Town Hall
Post Office Box 1
Gardiner, New York 12525

Re: The Awosting Preserve Proposed Subdivision
Evaluation of Allowable Lot Density

Dear Chairman Mele and Members of the Board:

Our firm has been retained by the Shawangunk Valley Conservancy, a not-for-profit environmental conservation group, to submit comments on their behalf with regards to the pending application for the Awosting Preserve cluster subdivision proposal. As requested by our client, our office has conducted a review of the submitted subdivision plans prepared by The Chazen Companies, dated November 27, 2002.

The purpose of our review was to evaluate the reasonableness of the proposed conventional subdivision lot layout plans, which will be used to establish the allowable lot density. This allowable lot density will form the basis and drive the design of the alternative residential cluster subdivision that the Applicant has proposed for this development.

As the Board is aware, determining the allowable lot density is the initial stage in the residential cluster subdivision planning process. This allowable lot density determination is one of the most critical steps required since this allowable density establishes the scope and scale of a cluster subdivision. Until this allowable density for the project is established, it is not meaningful to consider the specific impacts or merits of the alternative cluster subdivision layout. Although preliminary SEQRA-related investigations may be conducted to collect information regarding the existing site setting, SEQRA review procedures will not commence until after a reasonable cluster layout is developed for the site. Hence, we cannot overemphasize the need for the Board, at this stage of the development's review, to carefully consider the conventional subdivision layout and to request whatever additional information the Applicant must provide to ensure that Town Zoning and Subdivision requirements are fully addressed by the conventional subdivision layout that has recently been submitted to the Board.

As a result of our review of the submitted conventional subdivision layout plans, it is my professional opinion that the plans submitted by the Applicant do not meet minimum Town zoning and Subdivision requirements, nor could the conventional subdivision plan, as presented,

meet fundamental Town design standards. Compliance with these Town regulations are critical to the health and safety of Town residents, and are crucial to minimize the impacts to this environmentally sensitive land. Accordingly, we respectfully request that your Board consider the following summary of the results of our review.

I. Scope of the Review -

Our lot density review included an engineering and planning evaluation of the information contained on the conventional subdivision layout plans, with consideration of the following items:

- conformance with requirements of New York State Town Law § 278 regarding residential cluster subdivision standards and procedures;
- conformance with Town Zoning Bulk Requirements (including lot area, lot width, and lot frontage);
- estimation of necessary excavation and embankment construction to build the conventional subdivision roadways as they are proposed in accordance with Town Highway and Subdivision standards;
- consideration of lot accessibility and the site grading necessary to construct individual driveways in accordance with Town Subdivision and Zoning Code standards;
- investigation of site conditions relating to potential land disturbance and Stormwater management; and
- consideration of general planning principles.

II. Compliance with New York State Town Law § 278 -

As the Board is aware, the intent and purpose of cluster subdivisions is to allow flexibility in the design of subdivision lots so that the primary area of the construction occurs on the most suitable portions of the site, and the natural and scenic qualities of open land are preserved. When strictly applied, this alternative method for subdividing land often allows for a more efficient use of land while providing the same lot density of conventional development layouts. With respect to the Town of Gardiner's zoning provisions, the Town Board must authorize the Planning Board, by formal resolution, the ability to allow this alternative cluster subdivision approach.

The number of "clustered" subdivision lots which could be permitted cannot exceed the number which could be permitted, **in the Planning Board's judgment**, using a conventional subdivision layout. These standards for determining what could be permitted in the conventional subdivision layout are established by the application of the density requirements of the zoning ordinance and by requiring compliance with all other applicable Town requirements.

The determination of permissible lot density is one of the most critical responsibilities of the Planning Board in this process. There have been several court cases that have dealt with this particular issue and have been used by planning boards throughout the state for guidance in this

matter. One well-known case that provided the court's opinion on the matter of determining allowable lot density is *Kanaley v. Brennan*, 119 Misc. 2d 1003; 465 N.Y.S.2d 130; (1983), affirmed 120 A.D.2d 974,502 N.Y.S.2d 880 (1986). In this case, a Planning Board received information regarding several discrepancies in the proposed subdivision plan with respect to Town zoning regulations. There were conventional subdivision design proposal discrepancies with respect to the road and drainage construction regulations of the Town subdivision code, but the planning board failed to require additional information from the developer to address these issues. The court found that the submission of a plat without road grades and other details provides a planning board with no basis to determine the appropriate density for a parcel of land. Therefore, the clustered subdivision approval which was previously granted was found to be in valid. A copy of the Opinion of the Court for this case is attached for the Board's reference, since it speaks directly to the issues of this subdivision application.

III. Compliance with Town Zoning Bulk Requirements -

A comparison of the Zoning Code's Bulk Requirements for the AR-200 zoning district (and related zoning requirements) with the lot layout as shown on the submitted conventional subdivision plan indicates that 62 lots (i.e., 1 out of every 5 of the 326 conventional subdivision lots shown on the plan) do not meet these minimum Town zoning requirements. Please refer to the attached Exhibit A, "Substandard Lot Plan" which indicates their location within the conventional layout. The breakdown of the type of dimensional deficiencies for these 62 substandard lots is as follows:

- 20 lots that are deficient in lot width (i.e., a minimum of 250' width, as measured between the side lot lines from the front setback line to the rear setback lines is required);
- 39 lots that are deficient in lot frontage (i.e., a minimum of 187.5', as measured along the street line is required); and
- 3 lots that are deficient in lot area (i.e., a minimum of 200,000 square feet is required, with no more than 25% of the underwater land area to be counted as part of the lot area).

Of the above list, two lots were shown on the plan with less than the 200,000 square feet lot area, and one lot near Tillson Lake has less than 30% of the required lot area on dry land.

Twenty of the 39 lots deficient in lot frontage may be considered flag-type lots, which are not allowable in the Town Zoning Code (contrary to the Bulk Requirement Note that is shown on the Applicant's plans). No provisions are made in the zoning code's lot frontage definition for flag type lots, and in fact, the flag lot term cannot be found in either the zoning or the subdivision code.

Reduced lot frontage is only allowed by the Planning Board for lots where: 1) extraordinary site conditions prevail, or 2) there are deep narrow existing lot shapes that make the additional street frontage impractical. From review of the submitted subdivision plans, it appears that flag lots are being proposed for the purpose of reducing the length of streets and

increasing lot density. Additionally, all flag lots being proposed are to be created as deep, narrow lots and not due to existing property configurations. Accordingly, the Applicant should not assume flag-type lots as an "as-of-right" privilege in the Town of Gardiner. Rather, strict compliance with the zoning district's lot frontage requirements is necessary.

IV. Evaluation of Roadway Construction Effects on Lot Developability Potential -

The Town's subdivision regulations § 31.42 (B) requires that streets "shall conform insofar as possible to the original topography", "[t]hey shall be arranged so as to obtain as many building sites as possible at or above the grade of the street", and that "[a] combination of steep grades and sharp curves shall be avoided." On the broader subject of the land disturbance associated with the submitted conventional subdivision proposal, § 31.41 (C) of the subdivision regulations state that "[l]and to be subdivided shall be laid out and improved in reasonable conformity to the existing topography, in order to minimize grading and cut and fill, to retain insofar as possible the natural contours, to limit stormwater runoff and to conserve natural cover and soil." These standards must be carefully considered when evaluating the merits of the submitted conventional subdivision design.

The northwestern, upper half of the project site (i.e., above elevation 1100) is particularly steep, averaging a slope of approximately 30 percent toward the top of the Ridge. Average slopes on the lower half of the site generally average greater than the maximum allowable Town roadway grade standards. Such existing slopes make the construction of roads at a maximum grade of 10% (per Town Highway and Subdivision standards) particularly difficult, especially considering that the roadways paralleling the steep slopes must be notched into the side of the Ridge (e.g., at several locations the natural ground is so steep that an elevation drop of 30 feet or more, measured perpendicular to the roadway right-of-way, is not uncommon). Compounding this difficulty is the presence of bedrock at a depth of generally less than 2 feet. This suggests that extensive rock removal would be necessary, which would likely include the use of blasting techniques. To traverse up these steep slopes, the submitted conventional subdivision plan design proposes serpentine (switchback) roadway layouts.

As a means to evaluate the developability of lots in the this upper half of the site, we estimated probable roadway grades using the conventional subdivision plans roadway alignments and site topography. Roadway areas where the existing ground slope exceeded a 10% slope were first identified, since these areas would necessarily require either excavation or embankment roadway construction to comply with the Town's maximum allowable 10% roadway grade. The location of existing ground slopes within the proposed roadway alignments areas that exceed the allowable 10% grade are shown on the attached Exhibit B, "Excess Roadway Grade Plan."

Proposed roadway grade estimates were made throughout these identified areas based on an optimum, least land disturbance / grading scenario, while complying with the maximum roadway grade to the maximum allowable 10% proposed grade. Other roadway design grade scenarios are feasible, but the method employed for this analysis is anticipated to produce "low side" estimates of necessary roadway excavation depths and required roadway embankment

heights. Seven roadway location reference points are identified on Exhibit B. Information is also shown on this Exhibit with respect to the anticipated depth of excavation and height of embankments that will be required to construct the roadways, according to the current plans submitted.

Information was also noted at these seven reference points with regards to the elevation difference between the proposed roadway elevation and the existing ground elevation at the proposed lots' buildings setback line. The greater the difference in elevation between the proposed roadway and the proposed building sites is directly related to the ability to construct usable means of access to the building sites.

The information contained in Table 1 below indicates the extent of site alteration that will be necessary to construct the roadway system as shown on the conventional subdivision plan. This table also underscores the impracticality of safely accessing many of the lots proposed on this submitted conventional subdivision plan.

-- TABLE 1 --

Map Reference Point Identification*	Depth of Excavation Or Height of Embankment	Elevation Difference from the Proposed Roadway Elevation to the Adjacent Building Setback Line Existing Ground Elevation
A	25 feet (embankment)	45 feet above building elevation
B	20 feet (excavation)	40 feet below building elevation
C	40 feet (excavation)	55 feet below building elevation
D	40 feet (excavation)	35 feet below building elevation
E	75 feet (excavation)	140 feet below building elevation
F	50 feet (embankment)	80 feet above building elevation
G	50 feet (embankment)	70 feet above building elevation

(*refer to Exhibit B, "Excess Roadway Grade Plan" for map reference point locations)

As shown on Exhibit B and in the Table above, the road construction design as shown on the conventional subdivision plan would require extensive removal of soil, bedrock and woodlands. These examples serve as indicators of the massive site alteration that is proposed by this present design. This portion of the Ridge and its sensitive environmental setting would be irreversibly altered by this scale of site transformation.

Additional important factors in considering this plan regards methods that will be used to manage increased runoff produced by developed land and measures that must be employed to control soil erosion and sedimentation in the several streams and wetlands that exist on the site. Insufficient information has thus far been submitted to determine how these issues will be addressed. Standard stormwater management and erosion control techniques, such as detention basins and sediment ponds, cannot be employed without great difficulty on sites such as this due to steep slopes and minimal depth to bedrock. With bedrock less than 2 feet below the ground

surface, the choice of structural stormwater management facilities is very limited. This project will be required to obtain a NYSDEC Stormwater SPDES General Permit and a Stormwater Pollution Prevention Plan must be prepared by the Applicant to satisfactorily address stormwater management issues.

Please also note the precaution regarding removal of soil cover that might lead to exposing paths for contaminants to enter groundwater supplies through the fractured bedrock geology that exists at this site. Alternative methods to treat the stormwater quality must also consider protection of groundwater supplies. This concern applies both during and after construction. A further description of this particular concern is provided in section VI., Specific Related Site Condition Issues.

The Planning Board may also wish to consider whether at least some portion of the proposed streets within a development of this size should be classified as a "secondary street". If so, higher roadway design standards would apply, street right-of-way width would necessarily increase, and maximum roadway slopes would be reduced to an 8% grade. This street reclassification may also further limit the allowable lot density of the project site.

V. Compliance with the Town Zoning's Lot Accessibility Requirements –

A review of the Town's subdivision code § 31.44 (A) requires that lots must be buildable "....such that there will be no foreseeable difficulties, for reasons of topography or other conditions or in providing access to buildings on such lots from an approved street." The effect of the extensive site excavations and embankments to develop this property would lead one to question how much of this site will be buildable and what will be the true, allowable lot density.

The Town zoning ordinance's Supplementary Use Regulations (§ 30.51 (D)) specify additional, specific requirements for lot accessibility. Residential driveways must have an improved minimum width of 15 feet and extend to within not less than 20 feet of the residence on the lot. Maximum driveway slope cannot exceed a grade of 12%, and the minimum sight distance at the driveway entrance to the public street must be no less than 250 feet. These specifications are provided for the safety of the residents and the accessibility for firefighting equipment and emergency service providers.

When considering the magnitude of the excavations and embankments which will be necessary to construct the conventional subdivision layout as shown on the submitted plans, it is difficult to imagine how these driveway standards can be met throughout many areas of the site. Information must be provided that demonstrates that all lot accessibility criteria can be met without severely impacting the land.

VI. Related Specific Site Condition Issues –

Section 31.2 of the Town's Subdivision regulations includes a final statement at the end of the paragraph on the Town's subdivision policy that "[a]ll land is not necessarily suitable for subdivision." Certainly portions of this development site serve as an example to the truth in this statement.

A review of the *Soil Survey of Ulster County* (SCS, 1979) indicates two classifications of the predominate Nassau-Manlius soils that are located in the northwestern, upper half of the site. The depths of these soils to bedrock is generally 10 inches to 20 inches, with even less depth at the higher elevations on the site. The soils consist of shaly, silt loam that acts as a protective cover over the upfolded (tilted nearly vertical) shale bedrock that forms the Ridge. The shale bedrock is highly fractured and very susceptible as a source for groundwater contamination when the soil cover is removed. When vegetation is removed from the soil the hazard for erosion is also very high. The *Soil Survey* notes that even hiking trails need to be protected from erosion and established parallel with the slope whenever possible on these types of soils.

The *Soils Survey* indicates that building and site development on these soils is categorized as "severe" due to both the depths to bedrock and the steep slopes. Another important factor of these soils is that they are considered unsuitable for use in roadbuilding or building foundation construction. This factor further questions the viability of road construction on these slopes, especially if suitable soils must be imported onto the site to allow development. Given this information, the reasonableness of developing this upper portion of the Ridge must seriously be questioned.

In addition to the difficulty of construction on steep slopes, the long-term effects of the disturbance of steep slopes are known to result in:

- a loss of topsoil,
- an increase in soil erosion,
- siltation in streams and wetlands,
- the alteration of drainage patterns,
- the degradation of the quality of surface water,
- the potential for contamination of water supplies,
- slope failures,
- an increase in downstream runoff and the resulting intensification of flooding,
- alteration of scenic views,
- destruction of potentially significant habitat, and
- threats to personal safety.

In this regard, the community must rely on the Board to place great emphasis on the provisions of the General Requirements and Design Standards of the Town's subdivision code (§ 31.41 (C., Preservation of Natural Cover), which states that "[a]ny change of the natural slope of the land shall be permitted only by special consideration of the Planning Board." The proposed development's extensive alteration of the Ridge's steep slopes constitutes a significant threat to both the future residents and to the Gardiner community.

As the Board is also aware, an important consideration with regard to the development potential of this site must be the protection of the three primary streams that flow through the development site and the many wetland areas that are located in the higher elevations of the site. As previously stated, typical stormwater management methods will not be applicable to adequately protect these particular existing site conditions.

VII. Summary and Recommendations -

Based on the information contained in the conventional subdivision plan materials that have been submitted by the Applicant, it is apparent that several of the lots do not meet minimum Town Zoning Bulk Requirements. The roadway system, as designed, requires land disturbance activities that remove significant quantities of the existing forest and radically change the existing Ridge land form.

Without further information to the contrary, the submitted conventional subdivision design suggests the potential for extraordinary impacts to the land and the community. The submitted information does not provide a credible basis for the Board to make a reasonable determination of lot density. The Board may exercise its legal right to require that the Applicant provide revised plans and supporting information, as necessary, so that the Board can evaluate whether the conventional subdivision plan (that conforms to all applicable regulations) would merit approval before considering an alternative cluster layout. Setting this standard would help ensure that an accurate lot density count has been established for the proposed cluster subdivision design.

We recommend that the following information be submitted by the Applicant in order to proceed with the review of a residential cluster subdivision proposal:

1. A revised Conventional Subdivision Layout Plan which remedies the discrepancies in compliance with Town Zoning Bulk Requirement regulations.
2. Preliminary roadway profiles complying with maximum Town Highway and subdivision design criteria (including maximum allowable grades, maximum 1.5% grades within 40 feet of an intersection, minimum vertical curve $k=20$, etc.)
3. location of driveways to and homesites, showing proposed grading contours and complying with § 30.51 (D) lot access maximum slopes and other criteria as specified in this portion of the Town's zoning code.
4. Information regarding methods that will be used to manage stormwater quantity and quality and control soil erosion.
5. Inventory and classification of the site's natural features (i.e., streams, wetlands, natural landmarks, unusual landforms, unique rock outcrop areas, specimen trees, etc.) that might be preserved as a condition of a conventional subdivision approval.
6. Description of specific methods that will be used to mitigate impacts from construction on steep slopes and Ridge soils and protect against potential groundwater contamination.

Once the above revised and supplemental information is provided, the Board should be in

a position to make a realistic determination of the lot density that may be applied to the cluster subdivision proposal. It is expected that in the course of preparing these requested revisions and collecting the necessary additional information, the Applicant's conventional lot density and overall development proposal scale will be significantly reduced.

I trust that the above information will be helpful to your Board in determining a reasonable lot density as the key first stage of this residential cluster subdivision application. I would be pleased to meet with your Board to further discuss these issues in detail if this might assist in your review of this information.

On behalf of my client, the Shawangunk Valley Conservancy, your thoughtful consideration of this information is very much appreciated.

Sincerely,
David Clouser & Associates

David B. Clouser, PE, LS
NYS Professional Engineer No. 069334

encl. Kanaley v. Brennan, Opinion of the Court
Exhibit A, "Substandard Lot Plan"
Exhibit B, "Excess Roadway Grade Plan"

cc: Shawangunk Valley Conservancy, Inc.