

September 15, 2013
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Ms. Jackie Bay jackiebay@optonline.net
Citizens for Health, Safety & Welfare

*Scientists, Engineers &
Environmental Planners
Designing Innovative So-
lutions for Water, Wetland
and Soil Resources Man-
agement*

RE: Preliminary Review
Waterview Boulevard Application, Block 421 Lot 29
R D Realty, LLC
Troy Brook, Parsippany-Troy Hills Township
Morris County, New Jersey
pH

Dear Ms. Bay:

Princeton Hydro, LLC has completed a preliminary review of the above referenced project and offers the following comments specific to proposed development. Topics specific to the preliminary review are presented in the following sections.

Introduction

Review of the proposed zoning overlay reveals several basic issues that reveal fundamental flaws with the intensity of development that would be allowed. A fully conforming development under the overlay zoning allowances would overload the site to the extent that it would not be possible to safely engineer the ridge and adequately contain and manage stormwater on the site. As a result the site conditions that would result cannot be rectified during site plan review as the development intensity would be too intense.

The overlay district does not respect the site conditions and environment, as stated in the objective of the zoning, as the development is allowed irrespective of the topographic relief and natural resources.

Consistency with adjacent uses

The Council's professionals indicated that the proposed overlay is consistent with adjacent uses in a presentation at the public meeting. This assessment stands on its head when considered in the context of the way the adjacent uses harmonize with the physical characteristics of the site:

- The adjacent commercial use, to the east, is located on a section of the property that contains a flat/valley area in the southern section of the property. Whereas the ridge extends east-west along the northern margin of the site. This particular development respects the geologic/topographic conditions by not impacting the ridge with the footprint of the high square foot structure and associated parking. This zoning is irrespective of this fact.

Princeton Hydro, LLC

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- The adjacent residential, to the north and northeast, is located on a continuation of the ridge feature on this site. These smaller footprint structures and smaller lots respect the topographic features of the ridge and did/do not require significant site modifications to work harmoniously with the grades and lay of the land. This overlay zoning does not provide for a similar use as the intend of the overlay is for townhouses. Thereby requiring extensive areas of flat ground to establish continuous units.

Geology/geotechnical constraints

The site is underlain by a deposit of continuous till over sedimentary rocks situated on the hanging wall portion of the Ramopo fault.

The soil deposits at this location provide direct connection of stormwater to the underlying formations. This is particularly the case on this site due to the laustrine fan and till deposits. These formations are sandy to gravelly and can have cobbles and boulders. These mixtures of materials are uniquely suited for infiltration of water and are generally unstable in large vertical cuts.

The site is situated coincident with a ridge that extends from this parcel of land to the east along the rear of the adjacent residential properties. The proposed 75 buffer along Intervale Road will not protect the ridge. The tenuous nature of the ridge will be dramatically impacted by the significant excavation that will be required to install the intensity of commercial allowed in the overlay zoning. The glacial deposits on the site will be loose and prone to raveling failures and slope instability. The proposed overlay zone provides for a 300 foot buffer along Route 46, it should provide a similar buffer along Intervale Road to preserve and protect the ridge.

In conjunction with the increased buffer the Municipality needs to consider the implications of allowing a significant excavation on the site to construct a wall to facilitate the allowed commercial development intensity. The POD zone, the requirements of which will remain in effect, specifically does not allow for mining on the site. The code does not define mining. However the free dictionary, Merriam's, and other similar resources indicate mining is the process of removing minerals or ore from the earth. The extensive soil removal required to build a conforming development in accordance with the overlay will require the removal of a significant quantity of minerals from the site – tantamount to mining. Therefore, the allowances provided in this overlay are in direct conflict with the POD district.

The over-burden soils and glacial deposits of the thickness and gradation underlying this site provide ideal treatment of stormwater prior to discharging into the surface or groundwater in the watershed. The overlay district proposed will effectively seal and remove this protective layer, significantly pairing an already distressed watershed and groundwater resources.

Sedimentary rocks situated under these formations provide ideal conditions for the infiltration of stormwater into the geologic formations. These sedi-

mentary formations provide a significant source of potable water to both municipal and private purveyors. The sites located at the base of the footwall block of these normal faults more significantly impact the recharge to the hanging block formations as these formations unconformably terminate that the footwall. That is to say the originating source of the available groundwater to this and all down gradient municipalities rely upon the infiltration of the stormwater into the subsurface and recharge the aquifer.

The Ramopo fault is one of the largest fault systems in the northeast and arguably the largest in New Jersey and is rated as a fault with high vulnerability. This fault is still active and is credited to recent earthquake activity in New Jersey. Of particular concern is the loose granular overburden on this site in close proximity to the fault system. This results in a high potential for earthquake induced damage to structures built in this area. The current allowable use provides the opportunity for more robust construction and engineering techniques due to the use and nature of the zoning.

The possible implementation of unrestricted height retaining walls for this development will prove to be highly problematic. The potential for diamicton in the overburden soils is high. These types of deposits make the proper design and construction of vertically substantial retaining walls extremely difficult and prone to long term maintenance issues. To allow this in a zoning overlay would present long term issues that the Municipality will need to address long-term and present chronic Engineering problems throughout the life span of the site.

The proposed overlay district will increase the complexity of the development unnecessarily in the context of the site geology.

[Stormwater/flooding constraints](#)

Rutgers has completed a thorough review of the watershed and the related impacts. Important points that report include the significant degradation of the streams within the Municipality and watershed. Erosion related to unmitigated runoff has significantly reduced the capacity, health, and functionality. The currently proposed overlay does not provide any space for the implementation of a properly designed stormwater management approach. In order to adequately mitigate stormwater impacts from a development a decentralized approach is necessary. As discussed above, the overlay would allow such an intensity of development for a conforming development that it would not be possible for a site plan review to rectify the stormwater limitations. The overlay district allows an excess of impervious area.

The plan presented does not attempt to address proper and adequate storm water. The proposed zoning changes are predicated on the presented plan. Insomuch that this plan could not reasonably be developed in terms of adequate stormwater control, this must be considered in the decision to provide the requested overlay.

Improper or inadequate stormwater control in this proposed overlay will exacerbate the current flooding issues in the municipality.

The proposed Commercial/Residential Development is notoriously inadequate in long term stormwater maintenance. New Jersey experiences a significant rate of failure (80% in some studies) – when related to commercial or residential development this failure rate can increase significantly. Enforcement of stormwater control in industrial or office developments, allowed in the current zoning, is more rigorous than the development contemplated in the proposed overlay district.

The proposed overlay will result in detrimental stormwater impacts to the watershed and municipality.

Groundwater constraints

The wellhead protect areas (WHPA) are intended to not only limit the storage of hazardous materials but to conserve the recharge to the wellhead as a significant water source to the community. It is important to emphasize that these wellhead protection boundaries do *not represent a possible* impact to a wellhead - but instead they represent an imminent impact to a wellhead and the time it will take to get to the well.

Of the hazardous materials listed for a wellhead protection area is *road salt*. Maintaining piles of road salt or the excessive use of road salt in these WHPA will contribute substantially to the contamination of the well heads.

Commercial/residential community development, in contrast to the currently allowed office, will typically require substantial use of salt to maintain safe conditions. This concern should be considered more directly during this stage of a zoning change as the mapped underlying natural resources will provide conditions that could result in a wide spread impact to natural resources.

This proposed overlay is in conflict with the basic tenants of the WHPA – reduction of contamination to water supply wells. This concern must be considered for the proposed zoning change compounded by the relatively high mobility of contaminants in the over burden soils.

Soil erosion and sediment control (SCD) constraints

It is well established that construction runoff is the single most significant impact to water quality in watersheds. The proposed overlay will engender a lax approach to the implementation and enforcement of soil erosion and sediment control (SESC). This is particularly the case as it relates to residential development.

Closing

The proposed overlay is inconsistent with the conditions on this property. This is particularly the case with regards to the intent to allow large square foot structures on the site. This will require significant modification to the topography and geology of the site – tantamount to mining. As a result the site will be prone to instability and unsuitable conditions:

- Extensive, over-height walls will loom threateningly over commercial and will threaten to destabilize support of residential structures,
- streams will be further impacted by unmitigated stormwater runoff,
- wellheads will be impacted by contaminants and reduced recharge, and
- the ridge along Intervale Road will be impacted and made unstable by the significant site modifications and inadequate buffers.

The proposed overlay district, if passed, will have disastrous results, allowing an intensity of development that cannot be culled during the site plan approval process. The site plan review will not protect this site. This zoning overlay will allow an intensity of development that will further impair the watershed and will be in direct conflict with responsible decisions for the Municipality natural resources, as presented by Rutgers in the Watershed Report.

Best regards,



Keith J. Merl, PE, CPESC
Associate

- c. M. Gallagher, pH
- G. Goll, pH
- J. Miller, pH