

William Honachefsky, P.P., Q.E.P.
August 12, 2002

ADDITIONAL REVIEW OF PROPOSED SUBDIVISION OF BLOCK 10, LOT 12
HOLLAND TOWNSHIP

PREFACE

It is no secret that I am a strong proponent of and have pioneered the concept of **ecologically based municipal land use planning**, whose main premise is the enhanced protection of localized ecological infrastructure and natural resources, in order to assure the long term sustainability and well being of a community and its inhabitants. That process, however, does not start at the site plan approval stage, but rather during the development of the **Municipal Master Plan**, where natural resources and components of the local ecological infrastructure are inventoried and their health assessed through the use of scientifically based environmental indicators. It is at this stage that a municipality, in cooperation with its citizens, and other local interest groups, determine which parts of the community's natural resources and ecological infrastructure (i.e., areas of highest recharge, areas of prime agricultural soils and headwater areas etc.) will not be sacrificed at any cost. Zoning ordinances would then be crafted to implement the protection of those sacrosanct resources. **Such a pro-active approach** is in **sharp contrast** to the **reactive approach** of individual site plan reviews where determinations of which parts of the community's ecological infrastructure ought to be saved, are often left up to shortsighted, rancorous debates between groups with divergent and polarized opinions. This latter approach is no way to plan for the long term sustainability of a community. Yet, that is exactly the position that Holland Township finds itself regarding the proposed subdivision of Block 10, Lot 12.

Lot 12, Block 10 occupies part of the landscape that has now been officially designated the "**Highlands**," an area stretching diagonally across northwest New Jersey that is not only picturesque, but is recognized as critical to the long term protection of the water quality and quantity for millions of New Jerseyans. It is also an area rich in biodiversity. Obviously, our first common-sense preference would be to put this entire area off-limits

to all development, especially given the “state-of-the-art” of our present engineering practices which **are unable to adequately remediate or ameliorate the damages caused by our intrusions into areas of such rugged topography.** Thankfully, more and more of the nation’s design engineers are recognizing this shortcoming and are now becoming strong proponents of a land development philosophy that advocates the preservation of natural systems wherever possible. This includes such practices as staying off of exceptionally steep slopes to minimize erosion and sediment transport offsite and retaining large tracts of unbroken woodland so that the forest litter and canopy can continue to provide wildlife habitat, remove pollutants and aid in the replenishment of groundwater. Given the topographical characteristics of Block 10, Lot 12, and the potential for significant environmental damage if developed as proposed, **the site would be a prime candidate for outright acquisition,** if monies were available to Holland Township. Lacking that option, the Township must deal with determining the appropriate scheme for the development of this tract.

1) CLUSTER DEVELOPMENT

- a) First step regardless of cluster or conventional design, is to inventory site’s ecological infrastructure / natural resources / or site constraints including but not limited to: steep slopes, areas of highest recharge, rock outcroppings; wetlands, best agricultural soils, floodways, worst soils, endangered species habitat, trout production waterways, etc. **In this particular instance, with an LOI requested but not yet completed, and no pumped well test completed, this inventory would not be complete and an application for subdivision would be premature.**

- b) With this information, applicant should come forth with 2 sketch plats – one showing conventional layout and another showing cluster option, the latter taking into account all of those items previously inventoried. Then the Planning Board sits down with the applicant to discuss and finalize the lot layout that best serves the interests of the Township. **In other words, what parts of the ecological**

infrastructure does the Township hold as sacrosanct and will not sacrifice at any cost.

- c) There has been some mention at the prior public hearing that **this lot averaged** subdivision **might now be considered a cluster subdivision**, with the proposed donation of Lot 12.16 an area of 19.795 Ac.. This would amount to **22%** of the site dedicated to open space. The Township Land Use Code calls for a minimum of **30%** of the site to be dedicated to open space. **This would leave the applicant 7 to 8 Acres short.** Section 100-47.1 (E) (1) of the Township code indicates that: *“The open space resulting from the residential cluster development shall be deed restricted against further subdivision or development and shall be limited in use to agricultural uses or conservation or passive recreational uses of natural areas. Open space lots shall each have an area of at least 12 acres,.....”*.
- d) Converting the currently proposed lot-averaged subdivision to a cluster type development will, under Township regulations, reduce the number of lots allowed. The normal practice in considering a parcel for cluster-type development is to first reduce the overall (pre-development) acreage by the percentage of the site required to be retained as open space. This is either done by the use of a gross percentage or by combining the percentages of certain physical characteristics, such as, 100% of the acreage of the site where slopes are 25% or greater; 50% of the acreage where slopes are between 10% and 15%; or 100% of the acreage on the site covered by wetlands or floodplains or where bedrock is within 3 feet of the ground surface. Generally, the applicant is given the choice as to which method to use. In this case, Holland Township has prescribed a flat 30% dedication to open space. Once reduced, the resulting or net acreage can then be multiplied by the allowable density factor provided in the Township land use code to determine the allowable number of lots that can be created. Therefore, the overall acreage of 90.17 acres of Block 10, Lot 12 must be reduced by 30% before calculating the number of allowable lots under the cluster option.

Consequently, we find the Lot 12 acreage would be reduced by 27.05 acres to 63.12 acres. This 63.12 acres times the density factor of 0.165 dwelling units per acre provided in the Township Land Use code would allow the creation of 10.42 lots. The applicant has presently proposed 15 lots with 19.795 acres dedicated to open space. Under the cluster option 4-5 lots would have to be eliminated. **Given the substantial reduction in the number of lots, I would recommend a complete redesign in accordance with the procedures outlined previously in (a) and (b) above.** If a complete redesign is not required by the Township, then it is left with the unenviable task of reconciling the present lot-averaging design into a cluster development. If the Township chooses this latter option it has several **sub-optimal choices**. **First**, it could eliminate lots 12.04, 12.05, 12.06 and 12.07 completely and dedicate that area to public open space, thereby enhancing the protection of surface and groundwater quality as well as protecting a historic structure and site located downhill or southerly of these proposed lots from increased stormwater runoff and potential damage. This open space would then be added to the 19.795 acres already dedicated, thereby allowing the applicant to meet its 30% minimum requirement and then some. A **second option** would be to merge the same 4 lots into a single lot with the entire acreage, except for an acre and a half building footprint, dedicated as a public open space easement to the Township.

2) PUMPED WELL TEST

- a) Applicant's geologist does not take into account impervious cover to be installed on site, nor do her calculations consider the amount of impervious cover in the drainage basin area generally. While underlying geology will not change, the surface topography is constantly changing and what we are finding nationally is that the installation of impervious cover in the form of concrete and asphalt roadways and driveways and sidewalks and parking areas and rooftops is impacting the amounts of recharge actually making its way to the aquifer. Thus we are finding that the amounts of recharge are decreasing, and old assumptions on how much rainfall runoff is actually recharging may no longer be accurate. For

this site, the **applicant's engineer** indicated in the first hearing that approximately **4.5 acres of the site** will be taken up by **impervious roadway** and that approximately **1 acre of each lot will be graded** and cleared for construction of each dwelling. Thus another 15 acres will essentially be relatively impervious given the documented effects of subsoil grading and compaction. **This would mean 19.5 acres or 22% of the site would not be recharging the expected amount of rainfall, thereby lowering the annual amounts of rainfall calculated** by the applicant's geologist to recharge on an annual basis.

- b) The applicant's geologist proposes to pump a volume equivalent to the average day water demand or 5950 gallons. She also indicates that the peak day demand would be twice the average day demand or 11,900 gallons. The peak day demand over a 24 hour period would be equivalent to pumping at a rate of 8-9 GPM. **It would be more prudent to test at the peak day demand rate.** The Township Land Use Code, Section 100-35 calls for a pump test of at least 12 hours duration. **The pump test therefore should be a minimum of 12 hours in duration at a rate of 16-18 GPM.**
- c) **Generally, where there is a surface water drainage divide on a site (and assuming that ground water flows mimic surface water flows) an aquifer pump test should be required for each side of the divide.** The same would apply if the site is underlain by two geologic formations.
- d) **The pumped well test should be monitored by an impartial expert hired by the Township or actually conducted by the Township's own expert.**
- e) The aquifer pump test should be comprised of 3 stages. The first phase will involve the collection of background levels prior to the start of the test. The second phase will involve the pumping of water from the well and the monitoring of water level drawdown in the observation and pumping wells. The third phase

will involve the recovery of water levels in the pumping and observation wells after the pump has been shutdown. This third phase of the test should be at a minimum, the same length as the pumping phase.

- f) **The applicant has not provided a QA/QC project Workplan** so it is **impossible to comment** on the pumped well test for this site. Items that would be normally included in such a Workplan would be: How will flow and volume be measured at the wellhead; will barometric pressure be measured; how will pumped water be routed away from the test area so as not to induce recharge; how much antecedent rainfall will be allowed; what parameters will be sampled and preserved for in the requisite samples of groundwater required under Township code 100-35 (H) (2) (c); the siting of the observation wells and the rationale for their placement and so forth.

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William Honachefsky, P.P., Q.E.P.
October 8, 2002

ADDITIONAL REVIEW #2 OF PROPOSED SUBDIVISION OF
BLOCK 10, LOT 12
HOLLAND TOWNSHIP, HUNTERDON COUNTY, N.J.

As requested, I have reviewed the latest revised plans (consisting of 8 sheets) for the proposed subdivision of Block 10, Lot 12, Holland Township, prepared by Templin Engineering Associates, last revised September 27, 2002, and offer the following comments, observations and recommendations:

- 1) The proposed dry extended detention basin design as shown on the revised plans will not be adequate to preserve surface water quality or stream biology.
- 2) My earlier recommendations in prior review documents for this proposed subdivision, to have all of the wetlands on site delineated and placed on the subdivision map and the pumped well test performed, prior to any preliminary site plan discussions is again reiterated here. As regards the pumped well test specifically, the Township Land Use code at 100-54 (D) requires that, “...*the site plan submitted for approval shall be accompanied by the information described in and approved only on compliance with the provisions of subchapter 100-35 H (1) through (5) and subchapter 100-35 I.*”
- 3) The exact purpose of the proposed “open space” lot remains unclear. It would appear that the applicant is trying to retrofit a lot averaged subdivision into some type of hybridized cluster development, and in the process creating a quandary as to which provisions of the Holland Township Land use Code apply. Under the cluster provisions of the Township Code, the 30% minimum open space requirement would appear to be met by the applicant. However, Section 100-47.1 E (1) of the Code requires that open space resulting from residential cluster development, “...*be limited in use to agriculture uses or conservation or passive recreational uses of natural areas.*” The applicant’s proposal to include the construction of a residential dwelling on the open space lot would appear to conflict with the intent of the Township Code, thereby nullifying its conformance with the provisions of the cluster development regulations. In addition, it should be noted that the generally accepted practice for preserving land for agricultural purposes would be to give priority to those portions of the Township landscape best suited for agricultural purposes (i.e. those properties or parcels containing prime agricultural soils, generally level topography and which are actively being farmed). The proposed open space lot appears to be in direct contravention to that philosophy with 7-8 acres of the lot occupied by a major powerline right of way and 3 powerline towers, the presence of steep slopes and the presence of marginal and poor agricultural soils.