



# NEW JERSEY HIGHLANDS COALITION

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## YOUR WATER YOUR FUTURE

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Mr. Bruce Friedman, Director  
NJDEP Division of Water Monitoring and Standards  
Bureau of Environmental Analysis, Restoration and Standards  
Water Quality Management Planning Program  
401 East State Street  
Trenton, NJ 08625-0420  
By email: [bruce.friedman@dep.nj.gov](mailto:bruce.friedman@dep.nj.gov)

**Re: Proposed Amendment to the Upper Delaware  
Haberman Hampton  
Block 23 Lot 1  
Hampton Borough, Hunterdon County, New Jersey  
Program Interest No. 435437, Activity No. AMD170002**

January 4, 2020

Dear Mr. Friedman:

In submitting these comments on the above referenced proposed amendment to the Upper Delaware WQMP, the New Jersey Highlands Coalition represents the concerns of its [over 100 member organizations](#).

There are many reasons that the Haberman at Hamptons development, at the proposed density, is inappropriate for the site, as expressed by the many members of the public who testified at the Department's January 21, 2020 non-adversarial hearing in Flemington. In addition, very sound reasons have been submitted to you in written comments as to why the Department should consider the risks of permitting a discharge to ground water in close proximity to a non-degradation protected surface water, notably by Dr. Alan Hunt of the Musconetcong Watershed Association, and by Princeton Hydro, in their comments on behalf of the Musconetcong Watershed Association. I won't restate their well justified concerns, which I have read, including their cited source materials and their conclusions and recommendations, which this organization fully support. I will focus on the natural resource values of karst and why the department should consider its presence as a unique and valid Environmentally Sensitive Area, which in the interests of the health and safety of the State's citizens must be avoided, and the amendment, for the development at its proposed density, denied.

Anyone who as ever chewed a Roloids or Tums tablet to relieve indigestion can understand that dissolving calcium carbonate neutralizes acids. By the same interaction, acidic fluids flowing in carbonate rock causes it to dissolve, widening the channel and undermining the carbonate bedrock to the point that the roof of the channel can collapse, creating a sinkhole. Depending on the extent of development at the surface, the consequences can be devastating as structures can collapse into the sinkhole and sewer and natural gas pipes can sever. On the other hand, karst has high natural resource values. Water flows fast in karst regions and water temperatures are cool, creating ideal conditions for trout. According to UNESCO, "Groundwater in karst aquifers represent the most significant as well as the safest source of drinking water," yet the organization also warns us that, "Karst and caves are extremely fragile environments and they are affected by specific hazards and impacts, largely related to their endemic geomorphological, hydrological and ecological peculiarities." (Aureli, 2010). Carbonate rock also hosts unique plant species. Many of New Jersey's Natural Heritage Priority Sites are found in carbonate rock valleys and ridges. Karst also contributes to the region's scenic values, adding contours to the landscape. Limestone

outcrops and pinnacles can be prominent, adding dramatic features to a viewscape. Most karst in New Jersey is found in the Highlands, making it a particular natural feature of the region.

The Karst Waters Institute, a non-profit research organization in Pennsylvania whose mission is to improve the fundamental understanding of karst water systems for professionals and the public, states the issue succinctly:

*"The major environmental issue in land use for the year 2000 and beyond is water quality and supply. Since karst aquifers provide a large portion of the water supply for this country, our understanding of them is especially important. Karst regions are prominent in our concern about water resources because they are poorly understood and easily polluted.*

*Applied problems of karst terrains include the catastrophic collapse of roads and structures into sinkholes, the rapid migration of contaminated groundwater, and the general unsuitability of conventional groundwater investigative techniques to the study of karst flow systems." (karstwaters.org/educational resources).*

Clearly, the Department should not rely on the same standards employed elsewhere when approving NJPDES and stormwater permits, or in approving new, or expanded sewer service areas. In fact, despite not having specific language regulating development on karst in the WQMP Rules, the department had denied an amendment to the Upper Delaware WQMP because the standard USDA TR-55 Runoff Curve Number Method, used to calculate predevelopment stormwater runoff volumes, was inadequate in accurately addressing the influence of karst features. In an April, 18, 2007 letter from Lawrence Baier, Director of the Division of Watershed Management, to James Biegen, PE, of Maser Consulting regarding the EAI Investments/Hampton at Pohatcong development, the Department ruled, *"Based on our review of site conditions and the underlying (karst) geology of the site the predevelopment runoff calculations submitted for this site are greatly overstated."* The Department later approved a much scaled down development.

In addition, on June 16, 2004, the Department found that the Dowel/Centek Homes residential development's proposed amendment to the Upper Delaware WQMP was substantively deficient and that *"the Department will not approve the WMP from the Township until the specific site plan for this tract has been submitted for review."* And required the submission of *"a planning summary regarding the impacts of limestone within the Township and detail [as to] how the WMP proposal will address this issue."*

Where karst features are known to be present the Department is well aware that an extraordinary level of investigation is required to adequately address with any confidence hydrologic flows of stormwater and groundwater discharges, where sinkholes could develop, or where existing voids could expand to form sinkholes, or where a series of existing voids could expand to form a very large sinkhole resulting in a catastrophic collapse. Strategies such as dye tests could be employed to determine if and where a discharge to groundwater might connect to nearby surface waters.

In its Water Resources Technical Report vol. 2, the Highlands Council suggests a directive, *"that where ground water and surface water intersect and directly influence each other, a comprehensive delineation of both sources should be performed using a Sample Conjunctive (i.e., both surface and ground water) Delineation."* (p. 157). In other words, to adequately protect the State's water resources, where ground and surface waters influence each other, the degree of influence not only should be investigated, but also mapped, because such knowledge is important in permit decision making. And nowhere is the influence more likely than in karst. In fact wherever the Highlands Council, or the Department requires a Phase I or Phase II Geotechnical Investigation to reveal subsurface karst features, the results should become part of a database so that karst mapping can inform developers and subsequent permit decisions.

The current WQMP Rules at N.J.A.C. 7:15-1.5 defines an Environmentally Sensitive Area as *"those areas identified in an areawide WQM plan as land areas possessing characteristics or features that are important to the maintenance or improvement of water quality, or to the conservation of the natural resources of the State. Environmentally sensitive areas include, but are not limited to, areas mapped as endangered or threatened wildlife species habitat on the Department's most currently available Landscape Maps of Habitat for Endangered, Threatened or Other Priority Species, Natural Heritage Priority Sites, wetlands and riparian zones." (Emphasis added).*

Karst, as an environmentally sensitive feature, must be considered in development proposals, and the risks posed either avoided or adequately addressed, if water quality is to be maintained and health and safety are to be assured. The WQMP Rules require the avoidance of Environmentally Sensitive Areas (ESA) when considering new or expanded sewer service areas. By the incorporation of the concept that ESAs *"include, but not limited to"* the Rule allows some discretion by the Department when an ESA is encountered, but not specifically named, such as Riparian Areas, T&E species, Natural Heritage Priority Sites, etc., where the threat is well justified and the feature has documented environmental resource values.

Before this amendment can be approved, it is very reasonable that the Department require further testing, and appropriate modeling, to demonstrate that the karst features on the site can sustain the density of units, that the treated wastewater effluent will not contaminate the nearby public community well, or form sinkholes, or not dangerously expand existing voids, and that the groundwater wastewater discharge will not degrade the nearby Musconetcong River, which is protected by a Category-1 non degradation standard.

Meanwhile, it is important that the Department adopt durable standards for approving future amendments to WQMPs for expanded or new sewer service areas in locations underlain by karst topography. We do not see the Haberman at Hamptons to be an isolated proposal. We are aware of at least one other proposed WQMP amendment in the Highlands where karst is a factor.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Elliott Ruga', written over a light blue horizontal line.

Elliott Ruga, Policy and Communications Director  
New Jersey Highlands Coalition

cc: Lisa Plevin, NJ Highlands Council  
Matthew LaMarca, DEP  
Tony Dilidovico