



TOWN OF HINGHAM

BOARD OF HEALTH

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TO: Hingham Zoning Board of Appeals
FROM: Hingham Board of Health
RE: Nitrogen Sensitive Areas within the Town of Hingham, State Title-5 standard & Hingham Supplemental standard

The Hingham Board of Health (the Board) is charged with protecting the health and welfare of residents and visitors to Hingham. An essential role in fulfilling this responsibility is in the permitting of septic system design and installation. As you may know, septic systems introduce urea nitrogen waste into the groundwater. This groundwater is the water supply source for the towns of Hingham, Hull and a portion of Cohasset. Aquarion's water treatment plant cannot remove nitrogen from the water supply. The ingestion of excessive nitrates (nitrogen) through contaminated drinking water is a recognized biological hazard that causes serious human sickness, especially to children.

State Title-5 Septic Standards:

State Title-5 regulation specifically addresses the topic of nitrogen sensitivity under 310 CMR 15.215. This regulation contains two subsections for identifying and classifying nitrogen sensitive areas within a community. Subsection 15.215(1) identifies the area within a Zone II public water supply protection zone as a nitrogen sensitive area. Subsection 15.215(2) identifies other areas of vulnerable water bodies designated by the municipality through public process as nitrogen sensitive. In 1996, the Board went through this public process and identified the Weir River Watershed, the sole source of our town's public water supply, as a nitrogen sensitive area. This determination was based on scientific evaluation that included among other findings, the state's classification of our watershed as "highly susceptible" to cross contamination to pollutants, including nitrogen. The state has also classified our watershed as "high stressed" due to low flow conditions which has the effect of elevating groundwater nitrogen concentrations. And the most alarming evidence occurred in August of 2013, when one of our public water supply production wells exceeded the safe threshold for groundwater nitrogen. This event revealed not a potential, but actual excessive nitrogen contamination which resulted this production well being taken off-line.

The state Title-5 standard in Hingham relative to Nitrogen Sensitive Areas per 310 CMR 15.215(2) encompasses all the applicable areas within the Weir River Watershed. Obviously the areas in Hingham which are not within the Weir River Watershed are not deemed nitrogen sensitive under this state-defined classification nor would be the areas within our town's two (2) sewer districts along the northern portions of Hingham that are concurrently located within the Weir River watershed. The Board requires all septic disposal system located within an area of

Nitrogen Sensitivity meet the state Title-5 standard of nitrogen loading limitations as identified in 310 CMR 15.214. There is no provision for granting a variance to this standard. Therefore, the Board fully expects the Hingham Zoning Board of Appeals (the ZBA) to apply the state Title-5 standard, as described above, to any new septic system application in Hingham where the ZBA has jurisdictional oversight.

Local Supplemental Septic Standards:

State Title-5 provides municipalities the ability to promulgate local supplemental septic regulations that may exceed state standards under circumstances or conditions the local approving authority believes important. As mentioned above, the area within the Weir River watershed in Hingham, excluding the areas encompassed by Hingham Sewer District and the Weir River Sewer District is an area of Nitrogen Sensitivity per Title-5 regulation. Supplemental and in addition to the Title-5 standard, the Board has established a higher nitrogen loading standard for the entirety of Hingham which is 20% higher than the state standard. The ability to enact supplemental standards is allowed under the provisions of State Title-5, section 15.003(3) and MGL. This local standard, contained in the Hingham Supplemental Septic Regulations, Section VI-8, was established decades ago in large measure due to our stressed watershed, seasonal rainfall coefficients more realistic than the calculations built into state Title-5, inevitable residential growth resulting in more septic systems, and a desire to protect our public water supplier's ability to expand water withdrawals from our watershed to meet future demand. In addition, the Board also seeks to protect a homeowner's right to maintain or install their own potable well for domestic purposes; hence the imposition of a town-wide supplemental requirement.

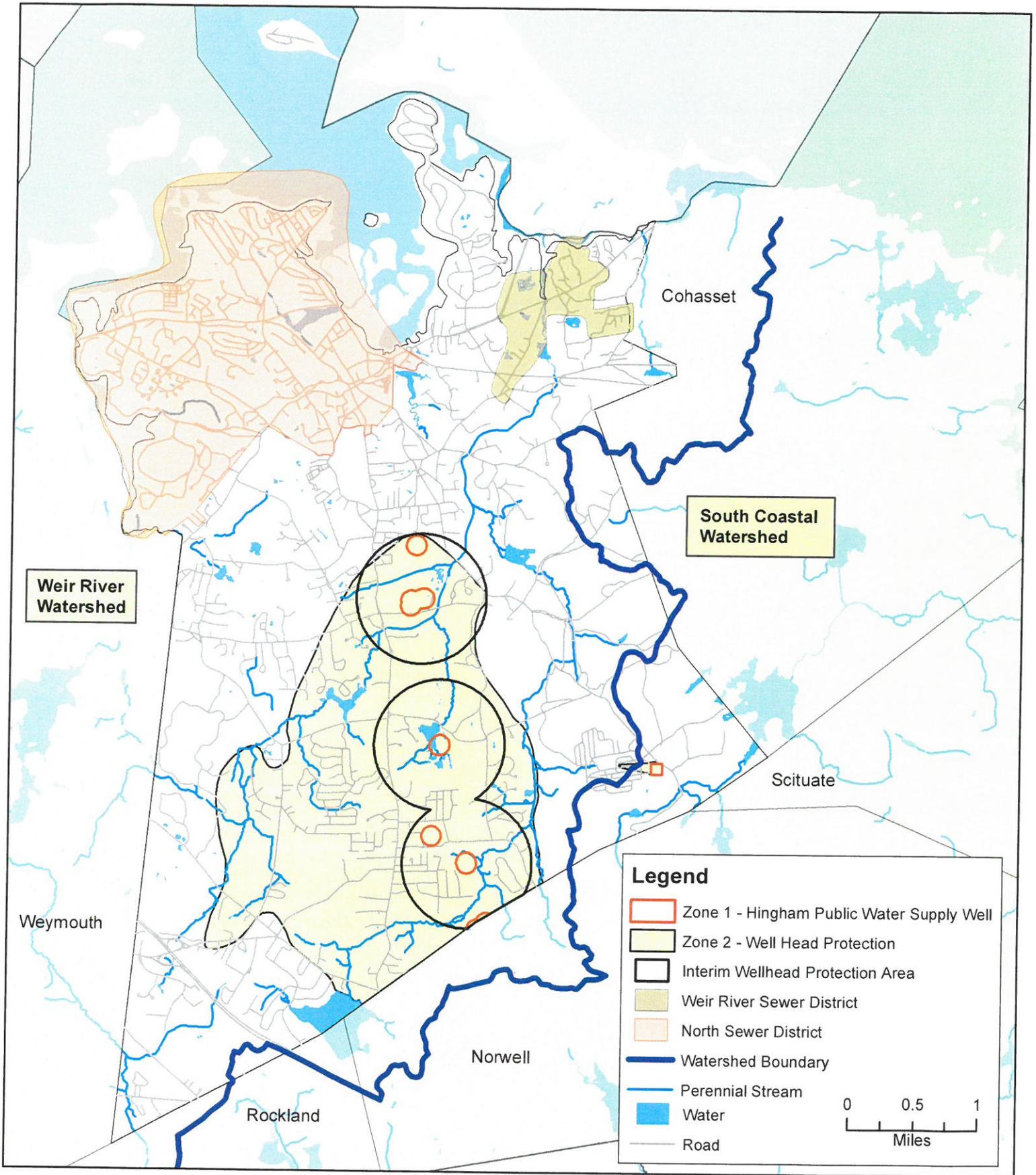
The Board recommends that the ZBA apply the higher local nitrogen standard to any new septic system in situations where the ZBA has jurisdictional oversight over the permitting process. At the very least, the Board insists that the local supplemental nitrogen standard must be applied within our town's Zone II public water supply protection zone.

Conclusion:

The Board believes a failure to impose the local nitrogen loading standard of at least 12,500 sq. feet of upland per bedroom within the area of our town's Zone II, and the Title-5 nitrogen standard of at least 10,000 sq. feet of upland per bedroom within the area of the Weir River Watershed (excluding the Hingham and Weir River sewer districts) would imperil the health and welfare of Hingham residents and visitors.

A handwritten signature in black ink, appearing to be a stylized name, possibly "John D. [unclear]".

Town of Hingham Water Resources



Data from The Office of Geographic Information (MassGIS), Commonwealth of Massachusetts Information Technology Division
 Insert Date

