

**Evidence of Significant, Adverse, Physical Impacts**

North Haven IWC Requirement	Non-Compliance	Impact on Wetlands/Watercourse	References
<p>10.2.1 (a). The <i>environmental impact</i> of the proposed regulated activity on wetlands or watercourses, including the effects on the inland wetlands' and watercourses' capacity to support fish and wildlife, to prevent flooding, to supply and protect surface and ground waters, to control sediment, to facilitate drainage, to <b>control pollution</b>, to support recreational activities, &amp; to <b>promote public health &amp; safety</b>.</p>	<p>Regarding unrenovated sewage plume reaching the nearby wetlands and introducing nitrogen and other pollutants into the wetlands, “Our calculations indicate that the concentration of nitrate at the wetland is 32.4 mg/L which exceeds the DEEP target of 10 mg/L and, as in the DEEP example, indicates that there is insufficient dilution from infiltrated precipitation. Equally important in this instance is the concentration of the ammonium by product which can be toxic to aquatic life at concentrations as low as 1 mg/L.” <i>The underlying principles involved in this calculation apply to all on-site systems, regardless of the size of the septic system.</i><sup>1</sup></p> <p>Nitrate-N levels in water samples collected on Feb 20, 2021 were 1.1 mg/L.<sup>2</sup> Nitrate levels in the wetlands due to unrenovated sewage plume is calculated by Loureiro Engineering to be over 30 times higher than the measured pre-development baseline, and 23 mg/l higher than the human health standard of 10 mg/l.<sup>3</sup></p>	<p>Surface waters with high levels of phosphorous and nitrogen exhibit Eutrophication, including toxic algal blooms, oxygen stress, proliferation of aquatic invasives.<sup>3</sup></p> <p>“Elevated nitrate-N levels also impair in-stream watercourse habitats through the following processes. The surfaces of stones and woody debris and crevices between them are an important macroinvertebrate habitat, and multiple taxa graze on the thin coating of diatoms on these rocks. Elevated nitrate-N levels trigger heavy growth of other algae which smothers this habitat, and then depletes oxygen in the water as it decomposes. The rotting algae blacken the rocks.”<sup>3</sup></p> <p>“Excessive nitrogen also stimulates tall growth of cattails and <i>Phragmites</i>, often converting open water habitat into a marsh. Likewise, wetland plant diversity suffers as species that grow well in low-nutrient environments are outcompeted and over shaded by taller, denser reeds and other rank vegetation.”<sup>3</sup></p>	<ol style="list-style-type: none"> <li>1. LEA report to North Haven Inland Wetlands Commission, dated Feb. 23, 2021, page 1, third paragraph.</li> <li>2. Phoenix Environmental Laboratories, Inc Surface Water Analysis Report, dated Feb. 23, 2021</li> <li>3. REMA report dated Feb. 23, 2021, page 5.</li> </ol>

North Haven IWC Requirement	Non-Compliance	Impact on Wetlands/Watercourse	References
<p>10.2.1 (b). The applicant's purpose for and any feasible and prudent alternatives to the proposed regulated activity which alternatives would cause less or no environmental impact to wetlands or watercourses including a consideration of alternatives which might enhance environmental quality and which could feasibly attain the basic objectives of the activity proposed in the application. This consideration should include, but is not limited to, the alternative of requiring actions of a different nature which would provide similar benefits with different environmental impacts, such as using a different location for the activity.</p>	<p>The Commission's inquiry should be focused on, and limited to, two issues: 1) will the proposed development have a significant impact on wetlands or watercourses; and, 2) is there a feasible and prudent alternative to the development IAW CT General Statutes § 22a-41?<sup>1</sup></p>	<p>Our experts from LEA and REMA have testified to the nature of the significant and adverse impacts of this project on the wetlands. Therefore, this commission is required to analyze and determine whether there is a feasible and prudent alternative to the proposal contained in the revised application. There are at least two: First, the property can be used for that which is permitted as of right by the Zoning Regulations, a single-family home; second, the property can continue to be used for that which it has already been approved by both this Commission and the Planning and Zoning Commission, a modest house of worship.<sup>1</sup></p> <p>The applicant's proposed development will have a significant, adverse impact on inland wetlands resources, and there is a feasible and prudent alternative to the development. Therefore, this Commission should deny the permit to conduct regulated activity. Connecticut General Statutes § 22a-41; <i>River Sound Development, LLC v. Inland Wetlands and Watercourses Commission of the Town of Old Saybrook Et Al</i>, 122 Conn.App. 644 (2010); <i>Grimes v. Conservation Commission of the Town of Litchfield</i>, 49 Conn.App. 95 (1998).<sup>1</sup></p>	<p>1. Memorandum of Law submitted by attorney John Parese at the Jan. 27, 2021 North Haven IWC hearing</p>

North Haven IWC Requirement	Non-Compliance	Impact on Wetlands/Watercourse	References
<p>10.2.1 (c). The <i>relationship between short-term and long-term impacts</i> of the proposed regulated activity on wetlands or watercourses and the maintenance and enhancement of long-term productivity of such wetlands or watercourses.</p>	<p>The total area disturbed by this project is 2.6 acres. This represents 87% of the total site area of 2.97 acres.</p> <p>The MMI Drainage Report indicates a total proposed impervious surface area of 1.21 acres for the proposed watersheds and of 1.01 acres for Water Quality Volume calculations.<sup>1</sup></p> <p>Referring to Reference 3, “One of the two methods prescribed in Manual for protecting against bank erosion and sedimentation states: <i>“control the 2-year, 24-hour, post- development peak flow rate to 50 percent of the 2 year, 24-hour pre-development level.”</i><sup>3</sup></p> <p>“Based on the MMI <i>Drainage Report</i>, the 2-year, post-development peak flow rate is 4.5 cfs (cubic feet per second), while the 2-year, pre-development peak flow rate is 4.7 cfs. Therefore, in order to meet this criterion, the peak flow rate during a 2-year, post- development peak flow must not be higher than 2.35 cfs. If this is not achieved, then there will be <i>a significant and adverse impact</i> upon the down gradient regulated resources.”<sup>3</sup></p>	<p>Even though one of the applicant’s latest reports claims that they have reduced the impervious surfaces to less than 1 acre, their most recent drainage report states that the total area of impervious surfaces whose runoff is conveyed to the level spreader is 1.21 acres.<sup>2</sup></p> <p>Regardless, there is a wetland seep and a headwater feeder stream downstream of the site, and therefore, even a site of less than an acre of impervious surface must comply with the stream channel protection criterion. Therefore, our conclusions from our January report stand, and there will be erosion of stream banks and sedimentation of aquatic habitat within the streams.<sup>2</sup></p>	<ol style="list-style-type: none"> <li>1. LEA <i>letter</i> to North Haven Inland Wetlands Commission, dated Feb. 23, 2021, page 2, first paragraph.</li> <li>2. REMA report to North Haven Inland Wetlands Commission, dated Feb. 23, 2021, page 7-8.</li> <li>3. REMA report to North Haven Inland Wetlands Commission, dated January 25, 2021.</li> </ol>

North Haven IWC Requirement	Non-Compliance	Impact on Wetlands/Watercourse	References
<p>10.2.1 (d). <i>Irreversible and irretrievable loss of wetlands or watercourses resources</i> which would be caused by the proposed regulated activity, including the extent to which such activity would foreclose a future ability to protect, enhance, or restore such resources and any mitigation measures which may be considered as a condition of issuing a permit for such activity including, but not limited to, measures to (1) prevent or minimize pollution or other environmental damage; (2) maintain or enhance existing environmental quality, (3) in the following order of priority: restore, enhance and create productive wetlands or watercourses resources.</p>	<p>“Loading of pollutants in storm water runoff discharged from the above ground basin (Basin 110), and of airborne particulate pollutants will reflect the much higher frequency of trips (135/day) for a school with 125 students plus staff, than would have been generated by the alternative of a small church, or by an alternative of several single family homes. Pollutants will include the entire suite of roadway pollutants, including toxic heavy metals, hydrocarbons including PAHs, phosphorus, and salt.”</p>	<p>“We note that based on the poor design of the detention basin, which is the primary water quality renovation BMP (best management practice) for the site, it will discharge partially treated runoff to the level spreader which is just a few feet upgradient of the wetland boundary. With respect to nitrogen, for instance, this discharged runoff will combine with nitrogen that will reach the wetland from a poorly designed and inefficient septic system.”</p> <p>“Elevated nitrate-N levels also impair in-stream watercourse habitats through the following processes. The surfaces of stones and woody debris and crevices between them are an important macroinvertebrate habitat, and multiple taxa graze on the thin coating of diatoms on these rocks. Elevated nitrate-N levels trigger heavy growth of other algae which smothers this habitat, and then depletes oxygen in the water as it decomposes. The rotting algae blacken the rocks.”</p> <p>“Excessive nitrogen also stimulates tall growth of cattails and <i>Phragmites</i>, often converting open water habitat into a marsh. Likewise, wetland plant diversity suffers as species that grow well in low-nutrient environments are outcompeted and over shaded by taller, denser reeds and other rank vegetation.”</p>	<p>1. REMA report dated Feb. 23, 2021, pages 2-3.</p>

North Haven IWC Requirement	Non-Compliance	Impact on Wetlands/Watercourse	References
<p>10.2.1 (e). <i>The character and degree of injury to or interference with, safety, health, or reasonable use of property, including abutting or downstream property, which is caused or threatened by the proposed regulated activity, or the creation of conditions which may do so. This includes recognition of potential damage from erosion, turbidity, or siltation, loss of fish and wildlife and their habitat, loss of unique habitat having demonstrable natural, scientific, or educational value, loss or diminution of beneficial aquatic organisms and wetland plants, the danger of flooding and pollution, and the destruction of the economic, aesthetic recreational and other public and private uses and values of wetlands and watercourses to the community.</i></p>	<p>A qualitative biosurvey at the main stem of the stream (see Figure E, attached), revealed an abundance of macroinvertebrates that are considered pollution sensitive and are typically only found in abundance in clean, unimpaired headwater streams, such as the one associated with the site. Two taxa, caddisflies and stoneflies were in abundance, represented by two families: Perlodidae (stoneflies) and Glossosomatidae (caddisflies) (see attached photos). Both of these taxa were found utilizing the hard substrate (i.e., rocks, cobbles) within the stream. These two families have very low pollution tolerance values.</p>	<p>Excessive nitrogen released by this inadequately designed septic system, in combination with the release of excessive nitrogen and other pollutants from this ineffective storm water management system will result in the destruction of the stream habitat upon which aquatic biota rely, algal blooms, and the growth of rank vegetation in the wetlands, which will then reduce the diversity of plants and the fauna that rely upon them.</p>	<p>1. REMA report dated Feb. 23, 2021, pages 6-7.</p>

North Haven IWC Requirement	Non-Compliance	Impact on Wetlands/Watercourse	References
<p>10.2.1 (f). <i>Impacts of the proposed regulated activity on the wetlands or watercourses outside the area for which activity is proposed</i> and future activities associated with or reasonably related to, the proposed regulated activity which are made inevitable by the proposed regulated activity and which may have an impact on wetlands and watercourses.</p>	<p>The impacts identified above by LEA and REMA experts quantify the harm that will be caused to contiguous wetlands.<sup>1, 2, 3</sup></p>	<p>The presence of steep slopes, the intensity of proposed land use, and soil erodibility of the proposed site all affect the characteristics of the adjacent watercourse, the vegetation and conditions in contiguous wetlands, and also impact the pollution of the wetland/watercourse/floodplain that is a tributary to a public water supply reservoir or lies within a public water supply watershed.<sup>4</sup></p>	<p>1. LEA report to North Haven Inland Wetlands Commission, dated Feb. 23, 2021, page 1, third paragraph.</p> <p>2. Phoenix Environmental Laboratories, Inc Surface Water Analysis Report, dated Feb. 23, 2021</p> <p>3. REMA report dated Feb. 23, 2021, page 5.</p> <p>4. Letter from Joan Lakin to North Haven Inland Wetlands Commission dated Dec. 11, 2020</p>

**Additional Areas of Non-Compliance with IWC Regulations**

North Haven IWC Requirement	Non-Compliance	Impact on Wetlands Decision	References
7.1.4 All information submitted in the application for review shall be considered factual, or in the case of anticipated activity, binding. A knowing failure of the applicant, or any agent of the property owner, to provide correct information, or performance exceeding the levels of activity anticipated, shall be sufficient grounds for the revocation of any permit under these Regulations and/or for penalties to be imposed.	Applicant has not asked for a permit to discharge storm water, only to build storm water discharge structures, therefore their application is incomplete.	Application should be denied due to incompleteness.	
7.3.6 The purpose and description of the proposed activity and proposed erosion and sedimentation controls and other management practices and mitigation measures which may be considered as a condition of issuing the permit for the proposed regulated activity including, but not limited to, measures to (1) prevent or minimize pollution or other environmental damage; (2) maintain or enhance existing environmental quality; (3) in the following order of priority: restore, enhance, and create productive wetland or watercourse resources.	Application does not identify major impacts caused by pollution and environmental damage as noted in LEA and REMA reports of 2/23/21.	Application should be denied due to incompleteness.	
7.4.1 (c) ... The wetlands and watercourses shall be delineated and flagged in the field by a soil scientist and that the field delineation be incorporated onto the site plan by a licensed surveyor.	M&MI wetlands delineation does not agree with REMA delineation.	Upland Review Area cannot be determined without resolving this.	

North Haven IWC Requirement	Non-Compliance	Impact on Wetlands Decision	References
7.1.4 (d) ...The Environmental Assessment Report(s) shall also provide information on the proposed regulated activity's impact on wetland fish and wildlife habitat and species, wetland vegetative characteristics and function, and ground-water flows to wetlands and watercourses.	Not provided	Application should be denied due to incompleteness.	
7.1.4 (e) Alternative Analysis Report and Alternative Plans shall describe how the proposed regulated activity will change, diminish, or enhance the ecological communities and function of the wetlands or watercourses involved in the application and each alternative, and describe why each alternative considered was deemed neither feasible nor prudent.	Not provided	Application should be denied due to incompleteness.	
7.4.1 (f) The applicant shall provide an analysis of chemical or physical characteristics of any proposed fill.	Not provided	Application should be denied due to incompleteness.	
7.4.1 (g) The applicant shall describe the measures which mitigate the impact of the proposed activity. Such measures include, but are not limited to, plans or actions which avoid destruction or diminution of wetland or watercourse functions, recreational uses and fish and wildlife habitats, and functions which prevent flooding, degradation of water quality, erosion and sedimentation and obstruction of drainage, or which otherwise safeguard water resources.	Not provided	Application should be denied due to incompleteness.	



North Haven IWC Requirement	Non-Compliance	Impact on Wetlands Decision	References
7.5.1 (b) Traffic attributable to the completed project on the site will use streets within the adjoining municipality to enter or exit the site.	Not provided, not certified.	Application should be denied due to incompleteness.	
7.5.1 (c) Sewer or water drainage from the project site will flow thru and impact the sewage or drainage system within the adjoining municipality; or	Not provided, not certified.	Application should be denied due to incompleteness.	
7.451 (d) Water runoff from the improved site will impact streets or other municipal or private property within the adjoining municipality.	Not provided, not certified.	Application should be denied due to incompleteness.	
8.1.3 Incomplete applications may be denied by the Commission.	The initial application was incomplete since it did not acknowledge that the site is an Aquifer Protection Area.	Application should have been denied due to incompleteness.	
10.3.1 In the case of an application which received a public hearing pursuant to a finding by the Commission that the proposed activity may have a significant impact on wetlands or watercourses, a permit shall not be issued unless the Commission finds on the basis of the record that a feasible and prudent alternative does not exist. In making this finding, the Commission shall consider the facts and circumstances set forth in §10.2 of these Regulations. The finding and the reasons therefore shall be stated on the record in writing.	The project will have significant, adverse impacts on the wetlands and watercourses, and prudent and feasible alternatives do exist.	Application should be denied.	
11.1.3 An application deemed incomplete by the Commission must be either withdrawn by the applicant or denied by the Commission.	The initial application in November 2020 did not say that the site is an Aquifer Protection Area.	The initial application was incomplete and should have been denied.	