



Kirt Mayland, Esq.
Director of the Eastern Water Project
206 Pleasant Street
Housatonic, MA 01236
kmayland@tu.org
(413) 274-6329

Via E-Mail

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Mrs. Denise Ruzicka
Inland Waters Division
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Re: Proposed Yale Farm Golf Course

Dear Denise:

This letter concerns the proposed development of the Yale Farm Golf Club, including the current golf course proposal its planned residential phase (the "Development") in the towns of Norfolk and Canaan, CT, and the water diversion and water quality certification applications pending with the Connecticut Department of Environmental Protection (the "DEP"). I am writing as the Director of the Eastern Water Project on behalf of Trout Unlimited ("TU") and its Connecticut Council. The Connecticut Council of TU represents the views of TU chapters and members on issues of statewide concern. TU has approximately 160,000 volunteers in 500 chapters nationwide and close to 4000 volunteers in 8 chapters in Connecticut alone.

TU is a national not-for-profit organization whose mission is to conserve, protect and restore North America's trout and salmon fisheries and their watersheds. Our particular concerns with respect to the Development relate to its construction at the headwaters of several Class A coldwater streams containing reproducing resident populations of wild brook trout and other coldwater species in the federally recognized Blackberry River watershed. Our specific concerns are elaborated below.

Headwater Streams

As you probably are aware, the value and need for protection of small, upland streams (both perennial and intermittent) and wetlands has risen to the forefront of national environmental protection in the last few years due to a variety of factors, and has been extensively documented in scientific and other journals. These smaller streams, which, in the past have tended to go unnoticed and unprotected, make up the vast

majority of stream systems, contribute approximately 70% of all downstream flow and perform a variety of essential functions for riparian and instream life, both within the streams and to the downstream tributaries. Until recently, a relative lack of regulatory understanding of and appreciation for the value of these streams – and consequently a lack of adequate regulation – has led directly to the vast degradation of many of them and, along with them, the majority of higher order rivers.

The headwater streams in Connecticut that have managed to remain intact, both in terms of water quality and streamflow, and that have persevered through the historical clear-cutting, farming and recent development surge, beg for the highest level of regulatory protection. The proposed Development at Yale Farm threatens to eviscerate both Hollow Brook and Ginger Creek and various intermittent tributaries, and degrade the larger downstream tributaries of the Whiting River and ultimately the Blackberry River.

These upland streams, with their cold groundwater infiltration, provide habitat for wild, coldwater species such as the state's only native trout, the brook trout. Brook trout are an essential element of both the natural history and outdoor heritage of the state of Connecticut and have been extirpated in many areas around the state due to large scale developments such as that proposed by the developer at Yale Farm.

In Connecticut, according to data compiled by the DEP's own Inland Fisheries Division (IFD), 80% of subwatersheds in the state contain populations of brook trout that are greatly reduced (below 50% of historical levels). According to the same data, there is only one intact subwatershed in the state. Connecticut's remaining brook trout populations are small and fragmented and are now located almost exclusively in the uppermost headwaters of stream systems, such as Hollow Brook and Ginger Creek.

River scientists and biologists use the term indicator species in discussing the value of wild brook trout. The presence of them in a stream is a discrete ecological fact that nevertheless signifies certain things – a particular mix of biotic, chemical and physical factors, a standard of purity, without which their presence is impossible. The decline of the native brook trout population in Connecticut is a general indicator of the overall deterioration in the health of the state's watersheds and streams, and a lack of adequate regulatory oversight.

TU seeks to protect watersheds through a multi-pronged approach, starting at these upland streams and working downstream to “protect, reconnect and restore” entire watersheds. Keeping the upland forests intact, and protecting the last remaining, existing wild brook trout populations and these small, coldwater streams, are the highest priority for Trout Unlimited's Connecticut Council. The proposed Development at Yale Farm, on multiple levels, not only threatens the headwater (perennial and intermittent) streams located on the subject property, but will directly impact the second and third order streams in the watershed also.

Even given the past land use on the subject property, both Ginger Creek and Hollow Brook still hold cool water throughout the summer. This is due to significant groundwater infiltration in both streams, groundwater that, if the Development were to be built, would be diverted and dumped into lined storage ponds. Notably, even during a recent, prolonged heat wave, on a 90 degree day, the confluences of both Hollow Brook and Ginger Creek at the Whiting River measured a cool 70 degrees. This was not the case farther upstream on the Whiting River. It is evident that any groundwater manipulation by the developer will not only directly affect the headwater streams but the Whiting River also. Due to this cold water, a valuable limestone influence, minimal gravel imbeddedness, and fairly pristine habitat overall, these headwater streams are attractive to trout and coldwater species in the summer due to temperature and in the fall for spawning habitat. Under the proposed Development, valuable forest habitat would be clear-cut to make room for these sterile and warm holding pools (with their high evaporation rates), which would constitute the new headwaters to this portion of the Blackberry River watershed. Essentially, there could not be anything worse for these streams or this watershed.

One of the principal issues that TU has with the proposed Development at Yale Farm is the likelihood that increased low flows will result in all of the impacted streams from the excessive groundwater withdrawals. Small streams, like Hollow Brook and Ginger Creek and the unnamed intermittent streams, experience a wide array of environmental conditions throughout the year. They are generally flashy and unstable environments with associated flora and fauna that have come to adapt and, in some cases, rely on such dramatic environmental change. Summer flows, as you know, are typically the lowest annual flows and can, at times, be near zero. Coldwater species and bugs and other aquatic organisms that can find refuge during these extreme conditions can survive to repopulate. Spring flows are on the other extreme and high in fluctuation and magnitude. Stream habitats depend on these high spring flows to redistribute sediments and provide water to floodplain ecosystems. Many species that inhabit small streams, like brook trout, are tolerant of these wide fluctuations found naturally, and indeed key in on spring and fall high flows to initiate their reproductive cycle. However, even extreme low flows at natural recurrence intervals can cause population level effects in brook trout and slimy sculpin and others that take years to recover from, if ever. Groundwater withdrawals that increase the low flow occurrence interval will result in populations that simply never recover.

The developer's applications do not include essential information. The developer, not the regulatory authorities or the public, has the burden of providing this information. The developer has not carried out sufficient pumping tests to alleviate the concerns TU continues to have regarding the likelihood of these artificially low and unnatural flow levels. Only a very short period of streamflow monitoring was carried out and is available for analysis. Therefore, any potential long-term effects of the withdrawals cannot be determined or quantified from the information provided. As the DEP notes itself in its July 3, 2007 memorandum, “[d]uring the pump test, short-term impacts were not observed to shallow piezometers... .” Even assuming this is so, what about the long-term impacts? Are not these the ones about which DEP should be most concerned? A

much more comprehensive data-collection effort is needed to support any analysis capable of quantifying short- and long-term streamflow depletion due to the nearby groundwater withdrawals of the Development. This is particularly true in flashy streams like Hollow Brook and Ginger Creek and the various intermittent streams. It is well-established that the more unpredictable or flashy the flow regime, the longer the record must be in order to reasonably predict conditions and potential effects.

The developer claims that, due to the fact it will not be pumping water from mid-November to mid-April, there will be a “replenishing of the deep bedrock aquifer storage” during this period - this water then being available for the following irrigation season. This statement is confusing at best. During the late fall, winter months and generally through late March, temperatures are frequently below freezing in this region (the coldest in the state) and much of the precipitation falls as snow. Infiltration capacities are also significantly reduced due to frozen soils and much of the precipitation that does not fall as snow leaves the area as runoff. This is hardly the best time of the year to count on recharge. Taking water at the time of the year when nature has the least to give (the summer), and expecting an aquifer to fully replenish during the time of the year when infiltration is perhaps at its lowest, defies logic.

Simply carrying out post-withdrawal monitoring is unacceptable, especially for a undisputedly water intensive development such as a golf course. A highly conditioned permit would be practically ineffective, simply not work, and, when unacceptable impacts are confirmed by the monitoring, any permit conditions will be too little, too late. In addition, the state enforcement of such monitoring conditions is a known challenge. It is also unrealistic to think that a “world class” course, highly dependent on excessive irrigation water to maintain its pristine turf will significantly curtail its water usage in the future, regardless of its impact on the surrounding waterbodies and wetlands. The developer must be required to submit all pertinent information with the application, and prior to any operation, not as part of a post-permit monitoring condition.

On top of the specific streamflow concerns with the proposed development, the withdrawals appear to be in gross violation of the spirit of Public Act 05-142 (An Act Concerning the Minimum Water Flow Regulations) and the legislature’s attempt to address various problems in the state associated with water withdrawals. As the DEP is well aware, as part of the ongoing negotiations with stakeholders to develop the new regulations, headwater streams, especially those containing wild brook trout (a proposed metric) and other coldwater species are, in the current draft, given the highest level of protection.

According to the latest science put forth by the technical working group (comprised of, among others, private consultants, academics and water company hydrologists), a water withdrawal from a headwater stream (such as Hollow Brook and Ginger Creek) or its contributing watershed would be limited to 5% of the 7Q10 (the lowest stream flow for seven consecutive days that would be expected to occur once in ten years). Everybody knows by now that both Hollow Brook and Ginger Creek and the various intermittent streams receive most of their flow from groundwater. If the

developer is taking the bulk of this groundwater during the dry summer months (which is not a recharge period), it would clearly be in gross violation of the 5% standard. It is unclear how the DEP could even consider permitting such a withdrawal like this in light of the mandate given to it by the legislature and the work being carried out by DEP's Inland Fisheries Division (IFD) and inland water department staff across the hall. Permitting this withdrawal would cast significant doubt on the sincerity of the DEP in tackling the mandates of PA 05-142 to resolve, through better regulation, streamflow problems such as this. Such action could cause a breakdown in the entire stakeholder negotiation process.

In addition to the unacceptably short pumping tests relied upon in the water diversion application, there is a startling lack of biological data or analysis accompanying either application being reviewed by DEP. Recent reports issued by Dr. Piotr Parasiewicz and Dr. Ken Wagner emphasize the unusual lack of a biological component to the various studies carried out by the developer's consultant Milone & MacBroom. Considering that the primary designated use of a Class A waterbody is "habitat for fish and other aquatic life and wildlife" and that a diversion permit explicitly requires information related to the effect of the proposed diversion on fish and wildlife, it is unclear why the developer neglected to conduct virtually any biological studies of the nearby waterbodies and the DEP should deem such applications incomplete without such studies. This absence of information is equally troublesome given the ecological fragility of the area in which it is attempting to develop, the length of time it has had to carry out long-term, thorough studies, and the fact that it has retained a consulting firm known region-wide for its stream analysis work.

It is contrary to the letter and intent of both the water quality standards and the water diversion act to ignore what is happening in the various intermittent and perennial streams running off the property by simply claiming "no impact". As Dr. Wagner wrote in his recent report to the DEP "[s]ound planning, incorporating all aspects of a conceived project can minimize impacts, but some effect is virtually inevitable; anytime no impact is claimed, or even no significant impact, one should be extremely skeptical and look carefully at the supporting data and analysis." If the developer had chosen to monitor stream biota **before** (and after) the implementation of the new withdrawals, such studies could have resulted in proper planning to avoid excessive depletion and fragmentation in the affected streams – critical for supporting the unique faunal assemblages. Unfortunately for everyone, the developer chose, over the past 6 years and during the course of two efforts to obtain its DEP permits, to virtually ignore stream biology and geomorphology, including impacts to the downstream tributaries and habitat.

Riparian Buffers

Another particular concern with the proposed golf course, and one that TU has regarding developments throughout the state, is the lack of protective riparian buffers between numerous sections of the golf course and Hollow Brook and the various intermittent streams. Establishing ecologically protective riparian buffers (including buffers from cutting) to protect headwater streams is a priority for TU and its Connecticut

Council, as evidenced by its urging, with that of various other environmental groups, of the passage of House Bill 7343 in the last legislative session. Numerous studies have demonstrated that when development, in its various forms, begins to occupy 10% or more of a watershed, brook trout are extirpated. This is due to multiple reasons, including lack of adequate riparian buffers, increased run-off, addition of pollutants, increases in water temperature and degradation of water quality – all intimately associated with golf course development. What may be a picturesque, crisp fairway to the “world class golfer” is in reality a slippery slide for runoff, pesticides, herbicides and other damaging pollutants (essential to the maintenance of the course’s “world class” status) into the rivers and surrounding wetlands and forest.

The IFD emphasizes the importance of adequate buffers in its policy stating the following:

“Naturally vegetated riparian ecosystems perform a variety of unique functions essential to a healthy instream aquatic environment. The delineation and importance of riparian functions are herein described. Vegetated riparian ecosystems: (1) Naturally filter sediments, nutrients, fertilizers, and other nonpoint source pollutants from overland runoff; (2) Maintain stream water temperatures suitable for spawning, egg and fry incubation, and rearing of resident finfish, (3) Stabilize stream banks and stream channels thereby reducing instream erosion and aquatic habitat degradation; (4) Supply large woody debris to streams providing critical instream habitat features for aquatic organisms; (5) Provide a substantial food source for aquatic insects which represent a significant proportion of food for resident finfish; (6) Serve as a reservoir, storing surplus runoff for gradual release during summer and early fall base flow periods.”

Jim MacBroom, of Milone & MacBroom, also noted this importance, when, in a 2003 paper, he stated that “[v]egetative zones up to 50± feet wide are important as a source of coarse woody debris and particulate material that serves as a source of organic energy for the base of the food chain. The first 50 feet adjacent to a wetland is also important for the treatment of surface water runoff which moves as sheet flow through vegetated areas that filter, absorb, infiltrate and attenuate of non-point source pollutants.” Yet the golf course that Milone & MacBroom is helping the developer design at Yale Farm comes within 50 feet of Hollow Brook on numerous holes.

Yale Farm Golf Course: Distances (in feet) from Hollow Brook to golf course features

Hole	Tee	Green	Fairway	Near Rough*
2		40 ft	30 ft	20 ft
7		40 ft	40 ft	20 ft
8		80 ft	80 ft	60 ft
11		120 ft	60 ft	30 ft
15		70 ft	50 ft	25 ft
16	60 ft		120 ft	20 ft
17		50 ft	30 ft	10 ft

* Far rough area may be closer to the brook; for example, at Hole 16 the far rough is shown to the edge of Hollow Brook.

Further, the IFD policy states that: “[a]lteration and exploitation of riparian corridors in Connecticut is a common event that significantly **degrades stream water quality and quantity.**” It goes on to state that: “[r]ecognizing the critical roles of riparian corridors, the Division provides buffer zone guidelines that are designed to bring uniformity and consistency to environmental review. The guidelines are simple, effective, and easy to administer. The following standard setting procedure should be used to calculate buffer zone widths:

Perennial Stream: A buffer zone **100 feet in width** should be maintained along each side.

Intermittent Stream: A buffer zone **50 feet in width** should be maintained along each.”

The values of mandatory buffer zones is repeated and emphasized in the corresponding IFD position statement.

It is unclear, given the chart above, the IFD policy and the definitive conclusions contained therein, and the testimony offered by the DEP on House Bill 7343, how the IFD or the DEP could deem the Development protective of Hollow Brook. There is also no discussion in the application of the proximity of the proposed Development to the various intermittent streams on the property. There is not even an effort to identify them or their biological value. The DEP recently received several maps, prepared by Dr. Kirk Sinclair of the Housatonic Valley Association and Dr. Paul Barten, one of which shows the “Intermittent and Ephemeral Stream Network” on the property with an overlay of the proposed golf course. Based on this map (map 3), the developer not only fails to avoid valuable intermittent and ephemeral streams (by 50 feet) but proposes to clear-cut and fill golf course holes on top of many of them.

Given the above, it goes without saying that the current Development layout violates both IFD and DEP policy along with recommended protections by expert river scientists.

Housing Component

The strategy of the developer to avoid discussing, at least in the applications, the inevitable housing component and its effect on the grasslands, forests, watercourses and associated wildlife is particularly troublesome and unsettling to nearly all of the concerned environmental groups and some federal agencies. For the past 6 years, the developer has issued press releases and maps, and discussed in great detail the anticipated residential housing component of this Development. Studies have also been provided demonstrating the economic infeasibility of the golf course without a residential subdivision. In a September, 2005 interview, following the rejection of its first golf course-only applications, the developer continued to admit (to everyone but the regulators) the inevitability of housing. Based on her discussions with the developer, the reporter conducting the interview wrote that “Betts makes no secret of the fact that high-end homes are still planned.” No secret to whom?

It is not clear why the DEP has not yet demanded a discussion and analysis of the housing component in both applications. It has wide latitude to do so as part of both its water quality and water diversion review. If the Army Corp of Engineers were to choose to bury its head in the sand and ignore the obvious, the DEP should take this as more reason (not less) to address the housing concerns. These resources, after all, belong to the state (not the federal government), which holds them in public trust for us all. Whether it is 100 homes or 60 or 20, or whatever number the developer is telling the press this week, the residential subdivision and its environmental impact need appropriate analysis. If the developer continues to deny – apparently only to the various regulators – that housing is not on the table, then the DEP should require conservation restrictions on all the land surrounding the golf course to prove, once and for all, that the golf course alone represents the single and complete project. This would go a long way to alleviating the housing fears and their subsequent environmental impact, along with eliminating any potential, ensuing litigation on this subject.

Generally, there has been a continual lack of transparency and an atmosphere of mistrust and refusal to cooperate perpetuated by the developer with respect to effects on drinking water supply on and in the vicinity of the property. It is still not clear why the developer refused to test the balance of the neighbors’ wells and springs during its most recent pump tests. The neighbors set forth a reasonable set of conditions they would like to have had implemented as part of the testing on their property, and instead of cooperating, or even submitting a counter reply (not one), the developer chose a less accurate, surrogate method of nesting wells. Given the fact that the neighbors’ wells are used for essential drinking water and also given the complex bedrock fracture system through which the groundwater on the properties flows, this absence of essential, accurate monitoring data should be considered a fatal flaw in their applications.

Other Conservation Factors

The entire Blackberry River Watershed, along with the surrounding Canaan Lime Cliffs and Canaan Mountain, encompasses areas considered to be of high conservation value and is on a limited list of Critical Treasures of the Connecticut Highlands as determined by the DEP, various stakeholders and the Highlands Coalition. As the DEP is also aware, the United States Congress and President Bush, in late 2006, designated the area as the Upper Housatonic Valley National Heritage Area, in large part to help “preserve and promote (the area’s) historical, cultural and natural resources.”

There is also an extensive process ongoing to “protect, connect, restore and enhance” the Housatonic River watershed, of which the Blackberry River and its tributaries are an integral part. Evidencing the importance of this river and its watershed to area citizens, over 92 projects were submitted to the Housatonic River Basin Natural Resources Restoration Project totaling over \$40 million (almost 5 times the amount of money available).

In fact, the IFD itself submitted an application of its own to improve fish habitat in the Blackberry River, downstream of the proposed Development. The IFD proposed to build a fish passage around the Beckley Furnace dam and to remove the remnants of a partially breached dam downstream. The IFD points out in its application that the Blackberry River, from the Whiting River (of which Hollow Brook is a direct tributary) to the Housatonic River is a Class 3 Wild Trout Management Area, one of only fifteen watercourses in the state so designated for their special wild trout populations. The purpose of the IFD’s proposal is to reconnect the habitat for the state-endangered Burbot and wild brown trout, slimy sculpin, blacknose dace and other coldwater species. Its preliminary analysis concluded that the dams have adversely affected the population structure of Burbot in the Blackberry River by restricting access to additional habitat, and that access to additional habitat (including habitat for spawning and juvenile development) should increase the Burbot population in the river.

In short, it would appear highly illogical to spend hundreds of thousands of dollars to reconnect these species to spawning habitat immediately downstream of the proposed Yale Farm Development, and simultaneously act in a manner supportive of the degradation of this spawning habitat by permitting the Development.

In conclusion, the developer referred to the DEP’s prior rejection of both applications as a roadmap to eventual success. Apparently it is lost on the road, as the applications this time appear to be even worse for the streams and aquatic life. Its new applications represent an even greater manipulation of the region’s natural hydrology, a **5% increase** in annual withdrawals, still do not address the inevitable subdivision component, contain no biological discussion, and are in violation of DEP policy (existing and planned) regarding streamflows and riparian buffers.

For the aforementioned reasons, TU strongly urges the DEP to quickly reject both the water quality and water diversion applications, and let us all move on to our statewide work to improve flows, buffers and watershed health.

Please feel free to call me with any questions or concerns.

Sincerely,

Kirt Mayland

cc: Senator William Finch

Representative Richard Roy

Senator Andrew Roraback

Representative George Wilber

Representative Roberta Willis

United States Congressman Christopher Murphy

Environmental Protection Agency

Michael Marsh

United States Fish & Wildlife

Gregory Mannesto

United States Army Corps of Engineers

Robert Desista

Stephen DiLorenzo

Canaan Conservation Coalition

Scott Asen

Wheaton Byers

Catherine Gevers

Trout Unlimited

Charles Gauvin

President and Chief Executive Officer

Elizabeth Maclin

Eastern Conservation Director

Bill Blaufuss

President – Connecticut Council

Department of Environmental Protection

Amey Marella
Betsey Wingfield
Doug Hoskins
Ed Parker
Bill Hyatt
Rick Jacobson
Peter Arrestad
Don Mysling
Mike Humphreys
Lee Dunbar
Tom Tyler
Rob LaFrance

Department of Public Health

Norma Gyle, R.N., Ph.D

Day, Berry & Howard

Elizabeth C. Barton, Esq.
Jason Weathers, Esq.

Sullivan & LeShane Public Relations, Inc.

Thomas Downie

Rivers Alliance

Margaret Miner

Housatonic Valley Association

Lynn Werner

Northwest Conservation District

Jean Cronauer

Connecticut Fund for the Environment

Curt Johnson
Roger Reynolds

Coalition for Sound Growth

Billy Gridley
Vint Lawrence

Murtha Cullina LLP

Gregory Sharp, Esq.

