



# Frog Pond Excavation

Windham, Connecticut

## **Eastern Connecticut Environmental Review Team Report**

Eastern Connecticut  
Resource Conservation and Development Area, Inc.

# Frog Pond Excavation Windham, Connecticut



Environmental Review Team Report

Prepared by the  
Eastern Connecticut Environmental Review Team  
of the Eastern Connecticut  
Resource Conservation and Development Area, Inc.

for the  
Inland Wetlands Commission  
Windham, Connecticut

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Report No. 587

CT Environmental Review Teams  
1066 Saybrook Road, P.O. Box 70  
Haddam, CT 06442  
(860) 345-3977

## ACKNOWLEDGMENTS

This report is an outgrowth of a request from the Windham Inland Wetlands Commission to the Eastern Connecticut Conservation District (ECCD). The ECCD referred this request to the Eastern Connecticut Resource Conservation and Development Area (RC&D) Executive Council for their consideration and approval. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The Eastern Connecticut Environmental Review Team Coordinator, Elaine Sych, would like to thank and gratefully acknowledge the following Team members whose professionalism and expertise were invaluable to the completion of this report.

The field review took place on Wednesday, July 14, 2004.

Nicholas Bellantoni	Connecticut State Archaeologist UCONN - CT State Museum of Natural History (860) 486-5248
Barbara Buddington	Executive Director Windham Region Council of Governments (860) 456-2221
Sean Cyr	Student Intern Quinebaug Community College
Scott Gravatt	District Director Eastern Connecticut Conservation District (860) 774-8397, Ext. 203
Charles Lee	Environmental Analyst III DEP - Lake Management Program (860) 424-3716

Alan Levere	Wetland Reviewer DEP - Environ. & Geog. Information Center (860) 424-3643
Dawn McKay	Biologist/Environmental Analyst III DEP - Environ. & Geog. Information Center (860)424-3592
Brian Murphy	Senior Fisheries Biologist DEP - Eastern District (860) 295-9523
Gregory M. Smith	Natural resource Specialist Eastern Conservation District (860) 774-8397
Randolph Steinen	Emeritus Professor UCONN - Department of Geology and Geophysics (860) 486-4435
Eric Thomas	Thames Watershed Coordinator DEP - Water Bureau - Planning & Standards (860) 424-3548

I would also like to thank James Finger, town planner, Stephanie Smith, Herbert Bush, Jana Butts and John Clausen, Windham Inland Wetlands Commission, Steven Edelman, the applicant and John M. Leahy, consulting engineer, for their cooperation and assistance during this environmental review.

Prior to the review day, each Team member received a summary of the proposed project with location and soils maps. During the field review Team members were given plans and additional information. Following the review, reports from each Team member were submitted to the ERT coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site plans or detailed solutions to development

problems. The Team does not recommend what final action should be taken on a proposed project - all final decisions rest with the town and landowner. This report identifies the existing resource base and evaluates its significance to potential and existing development, and also suggests considerations that should be of concern to the town and landowners. The results of this Team action are oriented toward the development of better environmental quality and the long term economics of land use.

The Eastern Connecticut RC&D Executive Council hopes you will find this report of value and assistance in the reviewing this proposed sand and gravel excavation.

If you require additional information please contact:

Elaine Sych, ERT Coordinator  
CT ERT Program  
P. O. Box 70  
Haddam, CT 06438  
(860) 345-3977

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# INTRODUCTION

## INTRODUCTION

The Windham Inland Wetlands Commission has requested assistance from the Eastern Connecticut Environmental Review Team in conducting a review of a proposed sand and gravel excavation from an existing pond.

Frog Pond was created as a mill impoundment in the mid 1700's on what is now Indian Hollow Brook. The pond has great historic significance to the Town of Windham (please see the Planning Considerations section). According to various sources the size of the pond is 17 to 21 acres. The 1750 dam remains in service. The pond was drained and excavated in 1949 to address eutrophication problems and according to the applicant met with only limited success. The pond today has depths ranging from four to nine feet and during the summer months according to the applicant has a quarter to a third of the water surface covered by vegetative growth. The applicant is proposing to drain the pond and excavate 300,000 - 500,000 cubic yards of material. The stated purpose for the excavation is restoration of the pond due to extreme eutrophication. Accumulated silts and sediments would be removed as well as a significant amount of sands and gravels. The pond would be deepened and used for a coldwater fishery.

## OBJECTIVES OF THE ERT STUDY

The Windham Inland Wetlands Commission is concerned about the complexity of the proposal to drain the pond, and the effect it may have on existing on-site wetlands and its potential effects on the hydrology of adjacent off-site wetlands. The commission is seeking guidance and recommendations in the following areas: hydrology, wetlands, pond management, watershed management, erosion

and sediment control, fisheries habitat, water quality, historic significance and traffic and access.

## **THE ERT PROCESS**

Through the efforts of the inland wetlands commission this environmental review and report was prepared for the Town of Windham.

This report provides an information base and a series of recommendations and guidelines which cover the topics requested by the commission. Team members were able to review maps, plans and supporting documentation provided by the town and applicant.

The review process consisted of four phases:

1. Inventory of the site's natural resources;
2. Assessment of these resources;
3. Identification of resource areas and review of plans; and
4. Presentation of education, management and land use guidelines.

The data collection phase involved both literature and field research. The field review was conducted on Wednesday, July 14, 2004. The emphasis of the field review was on the exchange of ideas, concerns and recommendations. Being on site allowed Team members to verify information and to identify other resources.

Once Team members had assimilated an adequate data base, they were able to analyze and interpret their findings. Individual Team members then prepared and submitted their reports to the ERT coordinator for compilation into this final ERT report.



Topographic/Location Map  
Scale 1" = 2000'

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## A WATERSHED PERSPECTIVE

These comments and recommendations to the Town of Windham Inland Wetland Commission are provided in the perspective of improving water quality and maintaining and supporting designated uses of the waters of the State in accordance with Connecticut's *Water Quality Standards*. Addressing water quality concerns and water resources within a watershed management plan framework takes into account cumulative impacts of numerous activities within a given watershed that may affect quality and/or quantity.

The *Water Quality Classifications*, based on the adopted Water Quality Standards, establish designated uses for surface and ground waters and identify the criteria to support those uses. The Standards and Classifications are designated to manage quality to protect health, the environment, and legitimate uses of water resource complete State of Connecticut Water Quality Standards and Criteria document available on the CTDEP website at: <http://www.dep.state.ct.us/wtr/wq/wqs.pdf>.

The following recommendations may overlap with those of other ERT member dealing with more specialized aspects of the review (i.e. fish and wildlife habit, historic/archaeological significance, wetlands, stormwater erosion and sediment control, etc.). In such cases, these recommendations are meant to support or supplement these specialized reviews, not to supplant them.

### PROPOSED PROJECT DESCRIPTION

If this reviewer recalls correctly, the applicant and consultants indicated at the that the plan calls for the 21-acre pond site to be excavated for ±400,000 cubic yards of gravel over an 5+ year construction process. A thirty foot depth to the pond

indicated as the designed final bottom depth for the existing, typical 4 to 5 foot depth.

## WATER QUALITY CLASSIFICATION

The review area lies within the Frog Pond impoundment of the local Indian Hollow Brook stream belt, nested within the larger Indian Hollow Brook sub-regional watershed (about a 2.2 square mile watershed). The abutting Route 14 nearly bisects this watershed. This subregional hydrologic unit is positioned adjacent to, but hydrologically separate from the Beaver Brook sub-regional watershed ( a 5.3+ square mile watershed) immediately to the east of the project site area. The Indian Hollow Brook watershed in turn is nested within the still larger Shetucket River watershed, which eventually discharges into the uppermost Thames River estuary in Norwich. The proposed sand and gravel excavation site is located in the upper third of the Shetucket River watershed.

The State of Connecticut has determined a surface water quality classification for Indian Hollow Brook as Class A. All surface water tributaries in the nearby area are designated as Class A. Class A surface waters have the following designated uses: habitat for fish and other aquatic life and wildlife; potential drinking water supplies; recreation; navigation; and water supply for industry and agriculture.

The State of Connecticut has determined a ground water quality classification around the site as Class GA. The Class GA classification includes the following designated uses: existing private and potential public or private supplies of water suitable for drinking, without treatment; and baseflow for hydraulically connected surface water bodies.

## AQUIFER RESOURCES

Aquifer Protection Areas (APAs) are also commonly referred to as wellhead protection areas. These APAs were delineated by the water utilities, and represent the area of groundwater contribution for active public water supply wells or well fields serving more the 1,000 people that are set in stratified drift deposits. There are no established APAs in close proximity to this Windham review site.

The Department of Environmental Protection has adopted regulations which provide the minimum standard for land use regulations to be adopted by each municipality within which an Aquifer Protection Area falls. The regulations prohibit development of new high-risk land use activities that use hazardous materials, and will require existing high risk land use activities that use hazardous materials to register and follow best management practices. The proposed land use regulations received approval of the Legislative Regulations Review Committee on January 27, 2004, and were filed with the Secretary of State's office on February 2, 2004. Filing with the Secretary of State was the final step in the adoption process, and establishes the effective date of the land use regulations.

## WATER QUALITY ASSESSMENT

To determine whether the State's surface water resources are meeting designated uses, CTDEP monitors or collects samples from selected water bodies throughout the state. Generally, water quality is assessed based on the following three uses; fish consumption, aquatic life support, and primary contact (i.e. direct exposure) for recreation. The degree to which the water body is suitable for that use is assigned one of the following use support descriptors: fully supporting, threatened (fully supporting but threatened by impairment), partially supporting,

not supporting, not attainable or not assessed. The degree to which these different uses are supported by the water body determines the “overall use support.” This information is submitted as a Water Quality Report to Congress.

- There are no listed water quality impairments for Frog Pond or for Indian Hollow Brook. The 2004 *Report* is available on the CTDEP website at: <http://www.dep.state.ct.us/wtr/wq/305b/305bindex.htm>.
- There were comments made verbally and in submitted documents by the applicant and consultant about deteriorating water quality conditions at Frog Pond. Based on this Team member’s visual observation during the site visit and lack of submitted documents of specific water quality conditions, this reviewer does not share those same interpretations as anything beyond a typical sequencing of processes underway in shallow freshwater impoundments of small streams across the region.

## DECREASED GROUNDWATER STORAGE

A cursory review of the surficial materials map of the site area indicates that the sand and gravel deposits underlying the Frog Pond area could provide ground water support for the downstream Indian Hollow Brook. This groundwater discharge may support base flow when surface water runoff and precipitation is low, especially if the pond is drained and is not refilled (including breach or removal of dam). It may also moderate stream temperatures, thereby reducing thermal stress on fish. Removal of the sand and gravel deposits may diminish the quantity of onsite water storage and the associated discharges to the wetlands, pond and streams, consequently affecting water quality and stream habitat.

A review of the available documents and site plans did not provide the information needed to fully understand the issues of groundwater connectivity

between the existing and proposed gravel excavation areas and with the associated upstream wetland(s). The wetland complex may have a critical hydrologic component need in the subsurface water level. All efforts should be made to ensure that no significant subsurface drainage from the wetland takes place during or after completion of the proposed gravel excavation.

It is recommended that the Town require a comprehensive groundwater monitoring and analysis study to ascertain water levels and provide additional information needed to make sound land use decision with regards to areal and vertical extent of the proposed excavation as well as site reclamation and final land use conservation and development plans. Such study should also assess likely changes of ground water levels, if any, and impacts to the wetland soils.

### **ADDITIONAL ISSUES OF CONCERN**

This is a sensitive site in terms of geologic, hydrologic, cultural (see local historical perspective of Frog Pond at:

<http://www.windhamhistory.org/frogs.shtml>) and resultant wildlife and flora resources. There is insufficient technical data provided to assess what adverse impacts the operation may have on these resources.

- Proper use and storage of petroleum products on the site must be very carefully planned for and executed during the permitted phases of the excavation. Where rapidly permeable soils exist, a strong possibility exists for accidental or deliberate spills of such products. In turn, the petroleum product(s) can quickly enter the regional groundwater resource and cause significant environmental pollution, which will likely require a large price tag to properly remediate to the Class GA criteria.

- This section will defer most issues concerning erosion and sediment control to other review sections of the report. One point to raise here is for the Windham IWC to consider the recommendation of a specifically articulated, phased excavation plan, with each permitted phase being reviewed to standards or criteria associated with Town requirements before the applicant proceeds to the next phase. The site visit meeting did not provide any such Town requirements or review guidelines for satisfactory reclamation and final completion requirements.
- Habitat protection should be a priority goal in the management of the gravel extraction operation. The best form of restoration is habitat protection. The cost of restoration can be much greater than the cost of habitat protection. The applicant should minimize the risk to habitat by ensuring adequate habitat protection. One specific recommendation is made at this end of this section This reviewer defers to other report sections that focus on identified fisheries, wildlife, and wetland resources within and adjacent to the project area.
- The proposed excavation may change underlying wetlands and thus change the character of some of the area from an herbaceous or woody swamp to an open water area. This change can result in commensurate changes to fish and wildlife species and other wetland functional values. This reviewer defers additional comments to other sections of this report.
- The review site is identified on the WINCOG Regional Land Use Plan 2002 as a High Priority Preservation Area. This plan is WINCOG's policy for conservation and development in the Windham Region. It was developed to help municipalities implement land use regulations and other policies that make the vision for the future of the Windham Region a reality. Windham IWC should request additional information from the applicant to clarify the proposal's intended outcomes with the regional importance of this area.



- One recommendation is for the Town Assessor to clarify the options available for private landowners, and in turn reflect those options through recommendations in the Town's Plan of Conservation and Development, to enroll in Connecticut Use Value Assessment Law, (codified through Public Act 490 as Connecticut General Statutes Sections 12-107a through 107-f). A basic fact sheet can be accessed at the State of Connecticut Department of Agriculture website at: <http://www.ct.gov/doag/cwp/view.asp?a=1366&q=259834>

## GROUNDWATER FLOW MANAGEMENT

Sand and gravel washing operations require significant quantities of water. Most often, the source of water used for the washing operation is a lake or stream adjacent to the excavation pit. The contractor must ensure that the amount of water removed from the lake or stream for the washing operation does not jeopardize the aquatic resources. In Connecticut, if the proposed combined gravel excavation operation results in the diversion of more than 50,000 gallons of surface or ground water in a 24-hour period, then a water diversion use permit may be required from CTDEP. More information on the permit process can be found on the CTDEP website at: <http://www.dep.state.ct.us/pao/iwrdfact/waterdiv.htm>.

## GROUNDWATER PROTECTION

During the site visit several Windham IW commissioners voiced general concerns about possible impacts to the area groundwater resources. A useful source of information or municipal commissions can be found in the CTDEP Bulletin No.26, "Protecting Connecticut's Groundwater: A Guide For Local Officials," Hartford, CT 1997.

## VEGETATED BUFFERS FOR RESOURCE PROTECTION

CTDEP recommends that any new development leave a vegetated strip between the area of disturbance and surface water resources, including wetlands to help protect water quality, and fish and wildlife habitats from nonpoint source pollution. Vegetated buffers help trap road sands, contaminants and other pollutants contained in stormwater run off generated from roadways, parking lots, roof tops, and other impervious surfaces, as well as eroded sediments occurring from natural scour or land moving activities such as site development and other soil disturbances. Vegetated buffers also help moderate the temperature of stormwater runoff, thereby reducing thermal impacts on aquatic wildlife. A 50-foot buffer is typical, but widths can vary immensely depending on such facts as topography, the erosivity of the soil, and the value or sensitivity of the water resource. The CTDEP Fisheries Division recommends a 100-foot buffer along perennial streams such as Indian Hollow Brook, and a 50-foot buffer along intermittent streams; measured from the upland boundary of the regulated area, including any riparian wetlands. CT DEP Fisheries further recommends that the buffer remain in a naturally vegetated and undisturbed condition. Riparian wetlands may provide valuable wildlife habitat, flood attenuation, water quality renovation, and groundwater recharge, so it is important to protect these areas from degradation. The applicant should incorporate this riparian corridor buffer guidance into a revised conceptual site reclamation and future site development plan for consideration by the Town of Windham Inland Wetlands Commission.



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## Public Act 490 - The Basics

### Q: What is Public Act 490 and Use Value Assessment?

A: Public Act 490 is Connecticut's law (Connecticut General Statutes Sect 12-107a through 107-f) that allows your farm, forest, or open space land assessed at its use value rather than its fair market or highest and best use value for purposes of local property taxation. Without use value assessment most landowners would have to sell the land because they would not be able to afford the property taxes on farm, forest, or open space land.

### Q: When did Public Act 490 begin, and is it unique to Connecticut?

A: Public Act 490 was passed by the Connecticut legislature in 1963. Every state in the nation has a Use Value Assessment law for its farm, forest, or open space land. Each state has different rules in regards to its particular Use Value Assessment law.

### Q: How much in property taxes can I save with Public Act 490?

A: Each situation is different; however, the savings can be significant. It should be noted that Public Act 490 allows farmers to continue to farm, and other landowners to continue to own forest and open space land without being forced to sell it to pay the local property taxes.

### Q: What happens if I sell my land or no longer use it for farm, forest, or open space land?

A: If land is taken out of the farm, forest or open space classification, you will be subject to a conveyance tax penalty, especially if it is within a ten year period of the initial date of classification. The situation where this penalty occurs can be quite complicated. It is best to seek further assistance if you believe you may face this issue.

### Q: What if my assessor says no?

A: As a taxpayer, you have the right to appeal your assessor's decision to your town's Board of Tax Review. It is suggested that you contact the Farm Business Consultant at the Connecticut Department of Agriculture, or the Cooperative Extension System before you proceed with your appeal. These service agencies do not offer legal advice or possess the authority to overturn your town's decision. However, they are experienced and knowledgeable in Public Act 490. Their insight might help you determine if you have a valid case on which to proceed.

**Q: Does my land qualify?**

A: Your assessor makes the determination if your land qualifies after you submitted an application form. A frequently asked question is "How much farmland do I need to qualify?" The state law sets no minimum, but some do have certain requirements. If you own forest land (generally 25 acres more), you must have your land designated as forest land by the Forestry Division of the Connecticut Department of Environmental Protection. Once you have this designation, you then go to your assessor and fill out an application that must be returned between September 1 and October 31.

**Q: Do I have to apply for it every year?**

A: No. Once you have been granted a farm, forest, or open space land classification under Public Act 490, the classification can only be removed if the use of the land changes or the land ownership changes. Once the ownership of the land changes (for whatever reason), the farm, forest, or open space land classification is lost, and the new owner(s) must reapply. Your town does not have the right to periodically ask you for an update of the usage of your Public Act 490 land. Many times they will do this by asking you to complete another application form. This may lead to some confusion that should be resolved before you proceed.

**Q: How do I obtain the application form that tax assessors use to determine if my land can be classified as farm, forest or open space under Public Act 490?**

A: You must go to your tax assessor's office and ask for an application or the [Connecticut Association of Assessing Officers](#) for downloadable forms. Remember, this application must be filled out and returned between September 1 to October 31.

**Q: Is Public Act 490 fair to my town and other property tax payers?**

A: When the legislature passed Public Act 490 in 1963, it included (and continues to this day) in the law's wording that "it was in the public interest to encourage the preservation of farm, forest, and open space land." Thus, in this respect it is very fair. Additionally, even with the lower property taxes collected from the towns do not sacrifice property tax revenues because of Public Act 490. Studies done across the nation, and closer to home by the American Farm Trust, have conclusively proven that property tax revenues generated by farm, forest, or open space land, are far greater than the expenditures by the town to service that land. On the contrary, the residential sector costs a town more to service than the amount of property tax generated from that sector. Thus, farm, forest, and open space land can actually help control and maintain reasonable rates of property taxation for all of a town's taxpayers.

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## GEOLOGY REVIEW

Frog Pond, and its upstream neighbor Lake Marie, are impoundments of Ballymahack Brook (the name as shown on the topographic map, in other sections of this report it is referred to as the Indian Hollow Brook/streambelt). Ballymahack Brook flows for most of its length on a stratified sand and gravel aquifer that is highly porous and permeable. Similarly, neighboring Beaver Brook flows on a sand and gravel aquifer for part of its length. Beaver Brook flows through a swamp just to the northeast of Frog Pond and then flows east, through a narrow valley (gap) floored by till (Dixon and Shaw, 1965) and away from the aquifer. The aquifers, however, merge. So, although there is a topographic divide for the surface water drainage just northeast of Frog Pond, and Ballymahack Brook and Beaver Brook are separate and distinct drainage basins, there are not separate ground water basins. The stratified sand and gravel is one aquifer with branches extending up Ballymahack Brook and up Beaver Brook.

The aquifer consists of stratified sand and gravel that was deposited by melt-water streams along the sides of remnants of glacial ice at the end of the last Ice Age. Frog Pond (Lake Marie also) occupies a low area that was formed when the remaining ice melted. It has steep banks as a result. Stratified sand and gravel deposits that form against and on top of left over ice are referred to as kames or in this case, when they form small terraces on the sides of the valley, kame terraces. They are referred to as "ice contact drift" by Clebnik (1971).

In general, ice-contact deposits form a hummocky topography and such is the case around Frog Pond. North and east of Frog Pond are several kettle-like

depressions and esker-like ridges. Hummocky topography is well developed in the upper valley of Beaver Brook as well.

Today Frog Pond is maintained by surface water flow during wet months, but by ground water seepage during dry months when, according to the applicant, surface inflow ceases but outflow over the dam continues. During dry spells, when the pond level might otherwise fall, the water table provides pressure to subaqueous springs that seep into the pond maintaining the pond level. Thus, when the pond level drops below the level of the water table, ground water flows into the pond from the aquifer. The water table is coincident with the pond surface along the shore line and rises slightly with increasing distance away from the pond.

Prior to the dam-building that created Frog Pond, Ballymahack Brook flowed down its valley, being maintained in a like manner by ground water seepage. The water table then was coincident with the stream elevation. The creation of Frog Pond elevated the water table in the local area by an amount equal to the original depth of the pond. It may be speculative, but the swamp surrounding Beaver Brook may owe its existence to the raising of the water table associated with the creation of Frog Pond. At least the wetland was enlarged by damming Ballymahack Brook. Likewise, the draining of Frog Pond during the proposed excavation process will lower the water table surrounding the pond site as ground water flows down the increased hydraulic gradient into the pond basin. Because the stratified drift aquifer is highly porous and permeable, the area affected by falling water table will likely include at least the southern end of the swamp in Beaver Brook. Possibly a large part of the wetland there will cease being wet.

Site plans drawn by the applicant's engineer indicate that the bottom of the pond will be deepened to an elevation of 223 feet (depth about 38 feet) during the excavation process. If the excavation pit is kept dry (by pumping) so that the excavating machinery can operate, the water table will be lowered even more

and the area of influence will increase to greater distances, increasing the likelihood of the wetlands surrounding Beaver Brook being affected. The longer the pond is drained and the excavation is kept dry by pumping, the greater the likelihood that the water table will be lowered greater distances away from the pond site, eventually affecting Beaver Brook.

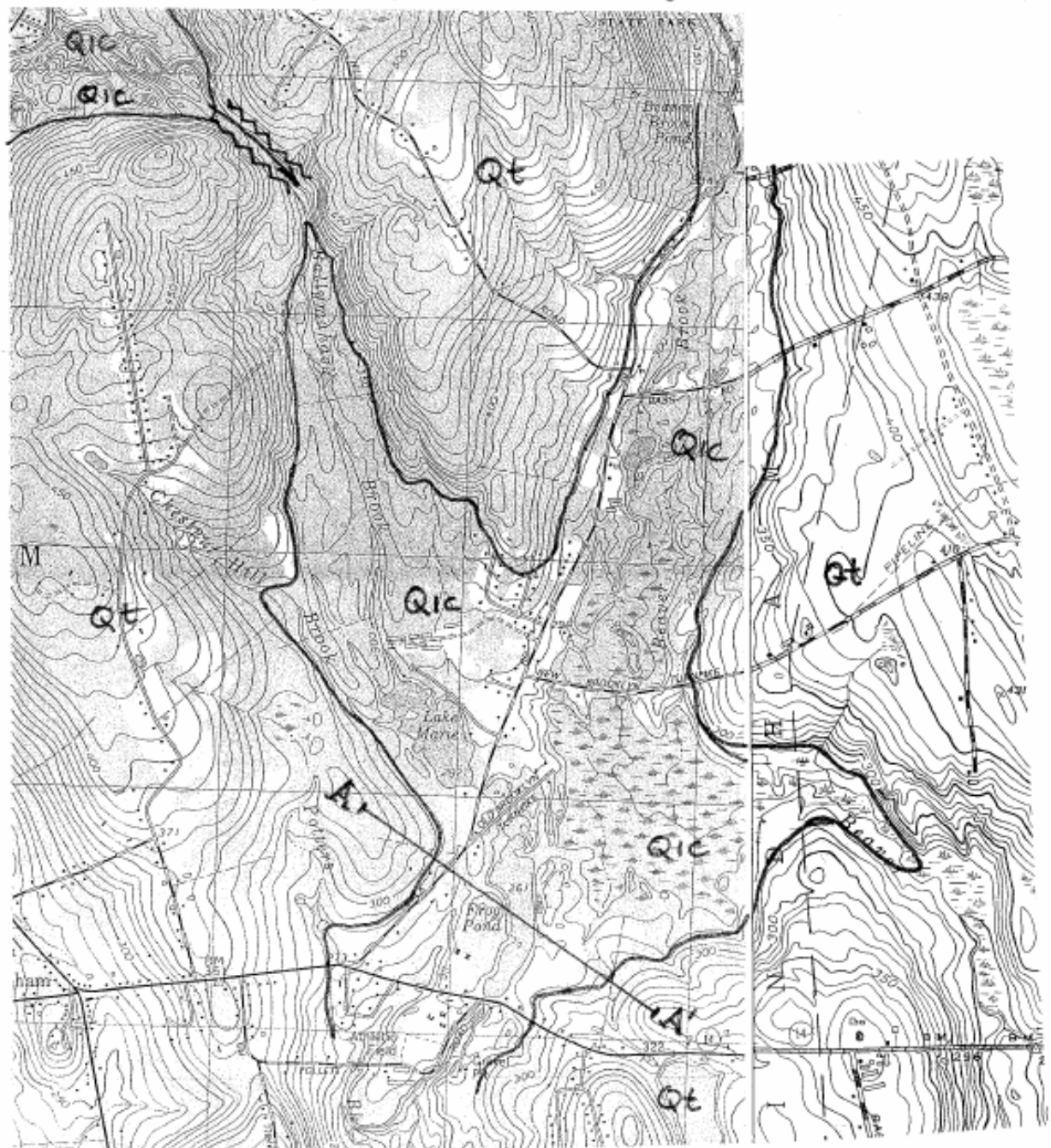
### RECOMMENDATION

A trained hydrologist should be retained to assess the area of influence associated with drawdown of the water table by draining Frog Pond for several years during proposed gravel excavation.

### REFERENCES CITED

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- Rodgers, John, 1985, Bedrock Geologic Map of Connecticut. Connecticut Geol. And Nat. Hist. Survey, Atlas Series: Bedrock Geologic Map.
- Snyder, G.L., 1964, Bedrock Geology of the Willimantic Quadrangle, CT. U.S. Geol. Surv. Quad. Map. GQ335.

Figure 1. Surficial geologic map showing area in Ballymahack and Beaver Brooks underlain by "Qic", stratified sand and gravel (after Clebrik, 1971). Scale 1" = 2000 feet. Note cross-section line AA' (see Figure 2). Qic = ice contact deposits (stratified sand and gravel); Qt = glacial till; zigzag pattern with arrow = meltwater gorge in bedrock. Although the Team geologist is not familiar with local history, it does not seem unwarranted to speculate that Old Brooklyn Turnpike did not just end in years past at the edge of the wetlands as it does today. It seems likely that it continued across to Beaver Brook and then up the ice-contact ridge where New Brooklyn Turnpike is located today. That encourages the Team geologist's speculation that a wetland did not exist when Old Brooklyn Turnpike was originally laid out. If that is the case, the wetland may owe its existence to the damming of Ballymahack Brook to form Frog Pond.





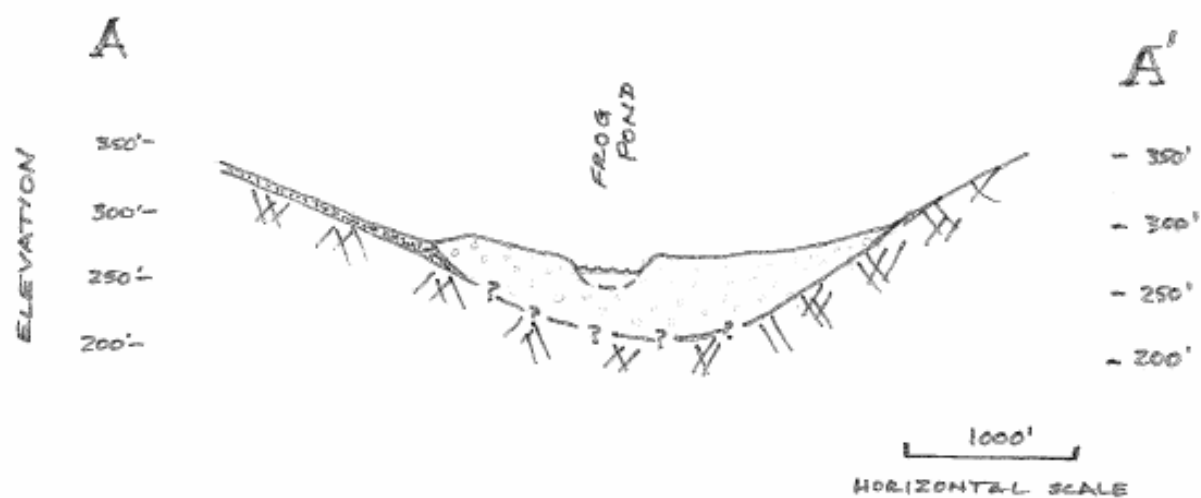


Figure 2. Interpretative cross-section through Frog Pond. Thickness of sand and gravel aquifer based on (1) well-driller's reports for water-wells drilled on Back Road, and (2) on projecting bedrock surface into the subsurface. Bedrock geology, which is not pertinent to this review, is described by Snyder (1964) and Rogers (1985).

# WETLAND RESOURCES

## WATERSHED

Frog Pond is situated in east central portion of the Town of Windham. It is fed primarily by Indian Hollow Brook which enters the pond from the northwest. Above this point of entry there are approximately 1,133 acres of drainage. This acreage is dominated by deciduous woodland interspersed with dense stands of conifers. It is mostly road free, features less than 100 homes (there is about one person per four acres) and there are less than a half dozen small cultivated fields. Of note in the watershed is the 22.5 acre Lake Marie, which is 1,450 feet upstream from Frog Pond. By all accounts, the watershed above the pond is very sparsely populated.

Below the outlet of Frog Pond, Indian Hollow Brook meanders about 15,000 feet, or a little less than three miles, to the south where it enters the Willimantic River. The pond surface is 261 feet above sea level and at the outlet point on the Willimantic the elevation is ~125 feet. This yields a flow gradient of less than one percent.<sup>1</sup>

The DEP Leachate and Wastewater Discharge maps show no known sources of pollutants. This officially yields a water quality of **A** on the scale of **AA, A, B, C, D**. It is likely though that the overall water quality is higher.<sup>2</sup>

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<sup>1</sup> (261-125=136; 136 divided by 15,018 [stream length] equals .91 percent gradient)

<sup>2</sup> The full water quality classifications may be reviewed at: <http://www.dep.state.ct.us/wtr/wq/wqinfo.htm>

## **FROG POND**

The first observation of the ponded water was on the southeast side of the southern end of the pond. Observations there revealed no outward signs of eutrophication. On the contrary the water was clear and free of the typically seen algal blooms that can reduce visibility to near zero in many eutrophied waters. Further north on the eastern side there were signs of beaver activity which included a lodge and a variety of gnawed trees. The pond is reportedly home to warmwater fish such as sunfish and bass.

A freshwater clamshell was found at the northeast shoreline of the pond. These bivalves are considered a valuable food source, especially for muskrats, otters, and raccoons and some birds including herons and ducks. Depending on their size the clams can filter several gallons of water a day helping to remove and store contaminants and thus increase their importance as a contributor to improved water quality.

Approximately two acres of surface water at the north end of the pond were covered with floating water lilies. Other emergent wetland plants included bur reed, buttonbush, pickerel weed, and soft rush.

Thus, by all appearances Frog Pond is part of a healthy, linearly connected system of wetlands and watercourses. It receives the drainage from about 175 square miles and exhibits a diversity of both flora and fauna.

## **CONCERNS AND RECOMMENDATIONS**

The true application here seems to be one of gravel extraction, not correction of eutrophied waters. Even though a gravel operation could persist on the landscape for five, or more years, it is still considered a temporary use. Thus, the

“temporary” impacts of the proposal during and post operation need to be considered.

The actual time needed to exhaust or sell off the gravel inventory once it is quarried is open to question. Certainly in an uncertain market gravel excavation and sales could be strung along for years - even years beyond the five to eight that were discussed.

Frog Pond sits on a large deposit of gravel. Gravel, because it is coarse grained, has the capacity to allow water to pass through it relatively easily. In contrast, water cannot pass through clay efficiently at all.

Four hundred feet east of the pond lies a ±125 acre wetland. This wetland sits atop the same extensive gravel deposit as does Frog Pond. Therefore, if Frog Pond is emptied/drained the potential exists for the water under the large neighboring wetland to gravitate westward through the gravel towards Frog Pond to fill the void left by the drained lake. Any persistent change in the ground water level underlying this extensive wetland would impact it - likely altering the balanced vegetation community that now exists. The drop of one to two inches would have immediate widespread impacts. To formally address these issues, a qualified geohydrologist should be engaged to establish the relationship between Frog Pond and the groundwater under the wetland to the east. This consultation should take place before any work begins and feature regular interval monitoring which continues through the completion of the project.

Leaving the water in the pond is most likely the surest course of action to preserve the integrity of the neighboring wetlands. In so doing, the water level would remain nearly constant, the pond itself would remain visually intact, and the potential impacts to the groundwater levels would be avoided. Any plan to reroute the stream course around the lake will have to be approved by the Water Diversion unit of the Connecticut DEP. They may be contacted at (860) 424-4192.

## OTHER

A formal plan, including time frames for assembling and installation of equipment, should be submitted to the appropriate town offices. The town should know the planned length of the project, soil erosion and sediment control plans, the revegetation/pit wall stabilization plans, proposed traffic counts, and post gravel operation use.

During the gravel operation erosion and sediment controls should be in place in accordance with *The 2002 Connecticut Guidelines for Soil Erosion and Sediment Control*. This document is available at the Department of Environmental Protection Store - the DEP Store - by visiting: <http://www.wherereverythingis.com/depstore/> and pathing to the Municipal Officials section.

## LAKE MANAGEMENT REVIEW

The Windham Frog Pond has a surface area of approximately 17.4 acres and a drainage basin area of 1,220 acres. The property owner had submitted an application to the Windham Inland Wetlands and Watercourses Commission (Commission) to dredge the Frog Pond down to a maximum depth of approximately 40 feet over much of the bottom. Currently the Frog Pond has a depth of 5 feet over much of the bottom. The property owner reports that dredging the Frog Pond to the proposed 40 foot depth will remove approximately  $\pm 350,000$  cubic yards of pond sediments along with sand and gravel. The proposed dredging project would be regulated by DEP under the Water Diversion Permitting Program.

The Environmental Review Team met at Windham Town Hall and visited the Frog Pond on July 14, 2004. Both in the materials provided to the ERT and at the meeting the property owner described the Pond as being in an advanced state of eutrophication. Advanced eutrophication implies that the pond has become increasingly fertile to a level where rooted aquatic plant growth and algae reduce aesthetic appeal and impair recreational value of the pond. DEP has developed a trophic classification system that places a waterbody in a trophic category based on its water column nutrient concentrations, percent area covered by rooted plants, chlorophyll a (a pigment that measures algae concentration), and water clarity. Upon inspection, the pond did not appear to be in an advanced state of eutrophication. No algae bloom was noticed and rooted plants only covered a small percentage of the pond's surface area. At the time of the ERT visit the pond had a desirable balanced mix of habitat areas and was suitable for most forms of recreation including swimming. Although reported by the property owner and his representatives that the "Frog Pond is suffering from a fairly advanced stage of eutrophication," this Team member does not agree. No data was

provided and the visual inspection on July 14, 2004 does not concur with the description provided by property owner. To document the actual "classification of the pond," spring and summer water quality data should be collected and compared to Connecticut DEP's trophic classification system.

The amount of material the property owner proposes to be removed from the Frog Pond is well beyond the volume usually dredged for restoration purposes. A review of numerous lake dredging projects sponsored by DEP reveals that approximately 5,000 cubic yards are removed per acre dredged. Therefore, one would expect that if dredging is an appropriate lake management technique to improve the trophic condition of the Frog Pond, approximately 90,000 cubic yards would be removed. However, the Frog Pond does not exhibit trophic conditions that usually warrant dredging.

The property owner lists both drawdown followed by excavation with conventional earth moving equipment, and dragline dredging as two likely methods that will be employed to remove sediment and mine the sand and gravel. Even with the dam open and water level lowered, much of the material that will be removed will be from beneath the water. The sequence would be to lower the pond, channel the incoming brook to one side, excavate with conventional earth moving equipment, once below the water level remove sand and gravel with a dragline dredge while the pond is down for several years.

As part of the applicant's requirement to explore all feasible alternatives, he should provide to the Commission a detailed assessment of hydraulic dredging as it may pertain to the Frog Pond. Hydraulic dredging does not require that the pond be lowered and therefore, impacts to the pond and nearby wetland ecosystems will be less than if the pond were drawn down for several years. A hydraulic dredge is a barge with a cutter head that breaks up the sediment. The sediment is pumped up to the barge and then pumped in a mud/water slurry through a floating pipeline and discharged into a containment basin system on

shore. The containment basin is an excavated area that allows the solids to settle by gravity. Removing the solids that do not settle by gravity is done in a second basin known as a flocculation basin by introducing a polymer as a settling agent. After final settling, the water is then discharged back to the pond. Hydraulic dredging has been used throughout Connecticut at a number of lakes and is preferred by DEP to drawdown followed by excavation when the drainage basin is large making water handling difficult, when removing large volumes of sediment over several years, when nearby wetlands may be impacted by the lowering the water level of the waterbody, and when an available site is located near the waterbody. All these conditions apply to the Frog Pond. The large watershed will make water handling difficult, the drawdown is likely to impact area wetlands, a large volume of material is proposed to be removed, and the borrow pit on the west side of the pond would be an ideal site for a containment basin system. DEP Lakes Management Program is available to discuss hydraulic dredging with the Commission in more detail upon request.

The property owner has mentioned that he would like to use the Frog Pond as a walleye fishery once the mining project is completed. The success of a walleye fishery is not guaranteed. Most lakes that support walleye fisheries in Connecticut have larger surface areas and more extensive littoral zones (area where rooted aquatic plants grow). The littoral area as proposed would be steep with an approximate 3:1 slope, leaving very little area for shallow habitat required by forage fish. Drawing the pond down would remove all the forage fish required for walleye. Reestablishing the forage fish would take several years of stocking and may not be possible without an adequate littoral zone.

Most lakes 40 foot deep lakes in Connecticut are natural lakes that have been created by glacier activity. These lakes have relatively small drainage area to surface area ratios of about 10:1 and usually have good water quality. The Frog Pond has a drainage area to surface area ratio of 70:1. As the watershed to surface area ratio increases, lakes tend to be more eutrophic because more nutrients are



available to drain into the waterbody. This relationship applies until the ratio increases to where the flow through the lake is so quick that nutrients do not have time to become available for algae growth such as in a river. These lakes are also usually relatively shallow and have small water volumes because they were created by damming wetland and river systems such as the Frog Pond. The unique condition that would be created by the proposed mining of the Frog Pond could create a waterbody that has a large drainage basin yet is deep enough to slow the flow so that nutrients will be available for algae growth. The Frog Pond will also be deep enough to thermally stratify and develop a bottom zone in the summer known as a hypolimnion. It is likely that the hypolimnion will become anoxic (absence of oxygen) as result of the nutrient load from the relatively large watershed. This environment may not be able to support walleye that require littoral habitat and cool oxygenated water,

In conclusion, the Frog Pond does not appear to be eutrophic or in need of restoration. The volume of material proposed to be dredged is extremely high given the surface area of the pond. Hydraulic dredging should be reviewed as a reasonable alternative. Success of the walleye fishery would be questionable. The project as proposed may create a lake prone to algae blooms with large area of deep anoxic water during the summer. The Commission should realize that if the project moves forward, it will also be reviewed by DEP for a Diversion Permit.

## CONSERVATION DISTRICT REVIEW

The Eastern Connecticut Conservation District (ECCD) reviewed the plans for the subject project, and is providing comments on the following topics:

1. General observations
2. Whether or not the pond is eutrophic
3. Future of the pond if there is no excavation
4. Timeline and scope for excavation
5. Proposed final grades - impact on vegetation and wildlife
6. Erosion and Sediment Control
7. Preventing negative impacts downstream of applicant's property
8. Assuring compliance

### GENERAL OBSERVATIONS

It well known that the pond holds immense historical significance for the Town. If the Town truly wants to preserve the pond, ECCD suggests the Town investigate the possibility of obtaining ownership, easement rights, or some other form of legally binding protection through an organization such as the Trust for Public Land, or other entity, if the town is unable to do so with its own resources. Otherwise, there is always the chance the pond can be impacted in such a way that the historical significance is destroyed. Presently, it is believed the pond has changed very little since the 1700's, and from an ecological standpoint, there was nothing observed to indicate anything but a healthy pond with an excellent habitat for frogs.

### W H E T H E R O R N O T T H E P O N D I S E U T R O P H I C

The applicant stated that the pond is eutrophic, indicating that this would be corrected by excavating the pond. Two comments: a) To be classified as eutrophic, a water body must meet certain scientific criteria, gathered over a specified period of time. There was no documentation in the information submitted confirming the claim the pond is eutrophic. Having a pond with a varying annual percentage cover of pond lilies does not make it eutrophic, b) If the pond is eutrophic, the nutrients causing the condition are most likely coming from sources outside of the pond. Excavating the pond will have no impact on those sources, so the ECCD knows of no basis for the proposition that excavation eliminates eutrophication except on a temporary basis since excess nutrients will continue to enter the pond. The district suggests before digging out the pond to control eutrophication (if indeed it is eutrophic) any upstream sedimentation sources should be investigated and ameliorated if they are found to be significant. Eutrophication can also be caused by excess fertilizers or other nutrient sources upstream or nearby. The problems caused by these sources may be easier to rectify than excavating the pond. (Also please refer to the Lake Management Review section for further discussion on eutrophication.)

### F U T U R E O F T H E P O N D I F T H E R E I S N O E X C A V A T I O N

The applicant suggested if the pond is not excavated the pond will silt in until there is no longer a pond. This is possibly a true hypothesis but the time for the pond to silt in would be estimated in either decades or centuries. No estimates were given and no documentation was submitted showing the rates of current silting. With the amount of uncertainty involved it is suggested that the prediction of the pond filling with silt should not be a factor when considering the applicant's proposal.

## TIMELINE AND AREA FOR EXCAVATION

If the Town of Windham approves this proposal it is suggested that the approval include a time limitation to prevent the project area from becoming a virtually permanent open gravel pit. ECCD further suggests a limit of five years and preferably less with no possibility of extension. It is suggested that if the commission approves this application Riker Pond in Woodbury be used as a model. While that application has been approved by the Inland Wetlands Commission and not the Zoning Commission as of the date of this writing it may provide a detailed model for the Windham commissioners. That applicant was allowed to excavate gravel in part of the pond. This enabled the applicant to check and repair the impoundment, derive income from the gravel and enable the area of the pond near the inlet to remain ecologically intact. In Riker pond the applicant was required to rapidly excavate in a matter of months (storing the excavated material nearby) and then refill the pond soon thereafter. No matter the time schedule that the commission requires the ECCD suggest that the applicant would have established final grades and taken the action necessary to refill the pond at the end of that time schedule.

## PROPOSED FINAL GRADES IMPACT ON VEGETATION AND WILDLIFE

The final grades of the proposed excavated pond are quite steep. The sudden increase in depth starting immediately at the edge of the pond would be a serious deterrent to the growth of vegetation around the edge of the pond. Lack of vegetation at the edge of the pond would in turn be a deterrent to fish and wildlife and lead to erosion potential. Without shallows and without cover it is unlikely frogs will continue to breed in the pond. If this project is to be considered further it is suggested the grades around the edge of the pond be no steeper than 10:1 within 10 feet in either direction of the edge of the waterline.

Additionally if preservation of the frog population is desired then a qualified independent herpetologist or biologist should be consulted for the design of shallows and shorelines particularly if the full area of the pond is to be excavated.

## EROSION AND SEDIMENT CONTROL

If the Town of Windham plans to approve this proposal it is strongly suggested that the Town require the applicant to comply with Connecticut's Erosion and Sediment Control Guidelines. This would involve requiring the submission of a complete and acceptable E&S plan prior to granting final approval of the project. *(Note: One of the services ECCD provides is an independent review of E&S plans should the project proceed to that step.)*

## PREVENTING NEGATIVE IMPACTS

### DOWNSTREAM OF APPLICANT'S PROPERTY

If the Town approves the project the approval should include requirements that the applicant not negatively impact the water entering the neighboring properties downstream. Below are listed three major categories of concern:

**a) Water quality:** ECCD suggests that the Town require the applicant to provide ongoing water quality monitoring and any necessary remedial action as part of the permit. If the water quality is ever determined to be unacceptable to the Town the applicant would then take appropriate corrective action.

**b) Quantity of water:** It is suggested the Town require that the quantity of water (annual average) leaving the applicant's property during and after the excavation be approximately the same as is presently leaving the property.

c) **Rate of water leaving the property:** The rate at which the water leaves the property can cause serious erosion problems downstream. The Town should require that the rate at which the water leaves the applicant's property during and after the excavation be approximately the same as the rate at which it presently leaves the property.

### ASSURING COMPLIANCE

If the Town approves this project it should be with certain conditions including the ones noted above. The Town will of course expect that all conditions will be complied with. However, the Town must be prepared in the eventuality that any of the conditions imposed are not met. This can be a very costly ordeal. ECCD suggests the Town require the applicant to post a bond or bonds in amounts that would make it possible for the Town to perform any necessary corrective action should the applicant fail to do so.

## FISHERIES RESOURCES

*(Note: This is a copy of a letter sent to James Finger, the Windham Town Planner, on May 11, 2004.)*

This letter is in response to the town's request for fisheries resource technical guidance relative to proposed sand and gravel excavation activities within Frog Pond, Windham. I have had an opportunity to review proposed pond excavation plans dated 2/4/04 as well as other materials submitted relative to the local inland wetlands application review. For your information, I have previously visited the Frog Pond with the property owner, Mr. Steven Edleman, several years ago and most recently discussed fish management options through a telephone conversation.

To begin with, I have discussed this project and provided materials to the Mr. Robert Gilmore, Supervising Environmental Analyst with the Inland Water Resources Division's water diversion program. The project as currently proposed comes under the regulatory purview of the CTDEP Inland Water Resources Division and as such, the applicant should contact Mr. Gilmore at 860 424-3866 regarding specific permit requirements. I will provide more substantive comments relative to this project once it is being reviewed through the DEP regulatory process; however, in the meantime, I can provide some very general advice and impressions of the project.

Frog Pond is an impoundment of Indian Hollow Brook. Plans sent for review indicate that the pond is approximately 21 acres in size. According to DEP, Environmental Conditions Online mapping, Frog Pond is 17.4 acres in size. No information was provided relative to the total amount of cubic yards that will be excavated from the pond nor the estimated time period required to

complete excavation operations. Regardless, the current proposal represents a very significant mining operation.

Frog Pond will have to be drained for sand and gravel materials to be excavated. The water draw down report shows the creation of a channel bypass to bypass stream flow around active areas of excavation. Obviously, the resident fish community will be impacted by this activity. It is my experience that some fish can survive the draining process by moving to upstream and downstream areas of Indian Hollow Brook. Fish could move upstream to the base of the dam at Lake Marie or downstream through the outlet into Indian Hollow Pond. However, you can expect that many fish will die during the process. The DEP Inland Fisheries Division does have the option to remove and salvage the fish.

No data is available relative to the existing fish community of Frog Pond or water quality conditions. The pond would be expected to support a warmwater fish community comprised of largemouth bass, sunfish species, chain pickerel, brown bullhead and shiners. Warmwater species of fish would annually reproduce in the pond. Frog Pond is like most lakes and ponds in Connecticut that typically support warmwater fish with very few having suitable temperature and dissolved oxygen levels for survival of coldwater species such as trout during the summer (Jacobs and O'Donnell, 2002).

It my understanding, that a primary reason for deepening the pond is to create more suitable habitats for coldwater fish like trout and walleye, a coolwater species. While deepening the pond up to 40 feet would create more suitable coldwater habitat for trout, typically only brown trout holdover in Connecticut Ponds, survival would be variable from year to year depending upon environmental conditions. At present due to the shallow nature of the pond, it does not thermally stratify during the summer. If allowed to be excavated up to 40 feet, Frog Pond would undergo what is termed summer



stratification, in which the warm upper layer (epilimnion) would be separated from the cold bottom layer (hypolimnion) by a sharp temperature gradient called the thermocline. Normal summer wind cannot mix these two distinct layers. While the hypolimnion provides cold water suitable for trout survival, this layer gradually becomes less suitable for fish survival in the summer due to declining dissolved oxygen levels. Fish species can survive in this zone for only short periods during summer (Jacobs and O'Donnell, 2002). Connecticut has about 20 lakes with sufficient water quality and thermal refuges for brown trout to survive through the summer. In essence, the creation of a deeper pond does not guarantee the creation of a successful coldwater trout fishery. There are some other considerations, which can influence the successful establishment of a trout fishery. First, trout would not successfully spawn in the Frog Pond; thus, the establishment of a trout population would have to be maintained through the establishment of a regular stocking program. The landowner will have to obtain a liberation permit from the Inland Fisheries Division to stock fish. Secondly, given the close proximity to Lake Marie, warmwater fish from that waterbody would eventually migrate downstream and become established within Frog Pond. Warmwater fish reestablishment in Frog Pond will increase the level of interspecific competition, thereby impacting trout growth and survival.

Presently, Frog Pond is shallow with a maximum depth of 9 feet. The excavation project as proposed will drastically alter pond morphometry creating one large deep basin 40 feet in depth with steep side slopes. The resultant pond lake bathymetry creates a somewhat artificial, uniform environment. This newly created deep basin comprises a very large percentage of the total pond area, quite uncommon for a pond of this size. Collectively, the deep basin, steep side slopes with no irregularities and a narrow littoral zone do not provide desirable inlake habitat conditions conducive to the restoration of well-balanced and diverse fish, macroinvertebrate, and macrophyte populations. Significant modifications to

this sand and gravel mining proposal would be required from this office before recommendation of any permit issuance. In addition, plans did not provide much detailed information relative to a sediment erosion and control plan. Such a plan will have to be devised in the future and adhere to recommended guidelines in the 2002 Connecticut Guidelines For Soil Erosion and Control Manual, DEP Bulletin 34.

# THE NATURAL DIVERSITY

## DATA BASE

The Natural Diversity Data Base maps and files have been reviewed regarding the project area. According to our information, there are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur at the site in question.

Natural Diversity Data Base information includes all information regarding critical biologic resources available to us at the time of the request. This information is a compilation of data collected over the years by the Environmental Geographic Information Center's Geological and Natural History Survey and cooperating units of DEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substituted for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

# PLANNING CONSIDERATIONS

## TRAFFIC AND ACCESS

The Town requested that traffic and access be considered in the ERT review of this project. The site lies between Back Road and Route 14. The owner is currently excavating material from an area adjacent to the proposed Frog Pond excavation, using a gravel road which exits onto Route 14. This road would continue to be used for the removal of materials from the Frog Pond excavation.

The developer indicated that the maximum amount of material to be removed was 540,000 cubic yards. If removed over a five year period, and assuming 15 cubic yards per truck load and a five-day work week, this would require approximately 28 truckloads per day, representing 56 one-way trips. The most recent average daily traffic (ADT) count for this section of Route 14 was 4600, and the highest hourly count represented only about 25% of the estimated hourly capacity of 1800 vehicle trips per hour. The addition of 56 extra one-way trips per day would therefore not have a significant impact.

While the sightlines may be adequate for traffic traveling at the posted speed of 40 mph the trucks would enter and leave Route 14 at the top of a small hill. This impairment of the vertical sightline combined with the anticipated slow speed of the trucks may warrant additional signage to alert drivers approaching this section of road that they might encounter slow-moving or turning trucks, if the project goes forward.

## CONSISTENCY WITH THE REGIONAL PLAN

Frog Pond is a historically significant feature in Windham. It was the location of the famous “Windham Frog Fight,” the story of which can be found in David Philips book *Legendary Connecticut*. The gist of the story was that a severe drought reduced the water level of the pond to virtually nothing, and hundreds (or thousands) of dying bullfrogs made such a clamor that the residents thought either that they were under attack by Indians or that the Day of Judgment had arrived. Evidence of the importance of this legend to the Town is widespread. It served as the basis of an 1893 operetta, *The Frogs of Windham*; it has been the subject of numerous poems, the Town uses the frog as part of its official town seal; large sculptures of frogs on spools are featured on the four corners of the Town’s new bridge, Thread City Crossing (a.k.a. the “frog bridge”); in 2003, plastic frogs floated down a section of the Willimantic River in a race to raise funds for charity; a “Frog Fest” is being planned for the summer of 2005.

The general area of this site is categorized as a “High Priority Preservation Area” and as part of a “Historic Areas Overlay” in WINCOG’s adopted *Windham Region Land Use Plan 2002*. The following excerpts from the plan pertain:

*The general policy for preservation areas is that they should be permanently protected from any immediate and potential negative impacts to the resource. Resource utilization and extraction, such as forestry and agriculture, should be sensitive to the environmental resources. (p. 16)*

*Historic Areas Overlay represents a diversity of resources that may include archeological sites, historic structures and districts, as well as the locations of historic events....Historic areas are a testimony to our pre-colonial, colonial, and industrial past and help shape our unique regional identity and spirit. ... Historic resources should be protected from immediate and potential negative impacts.*

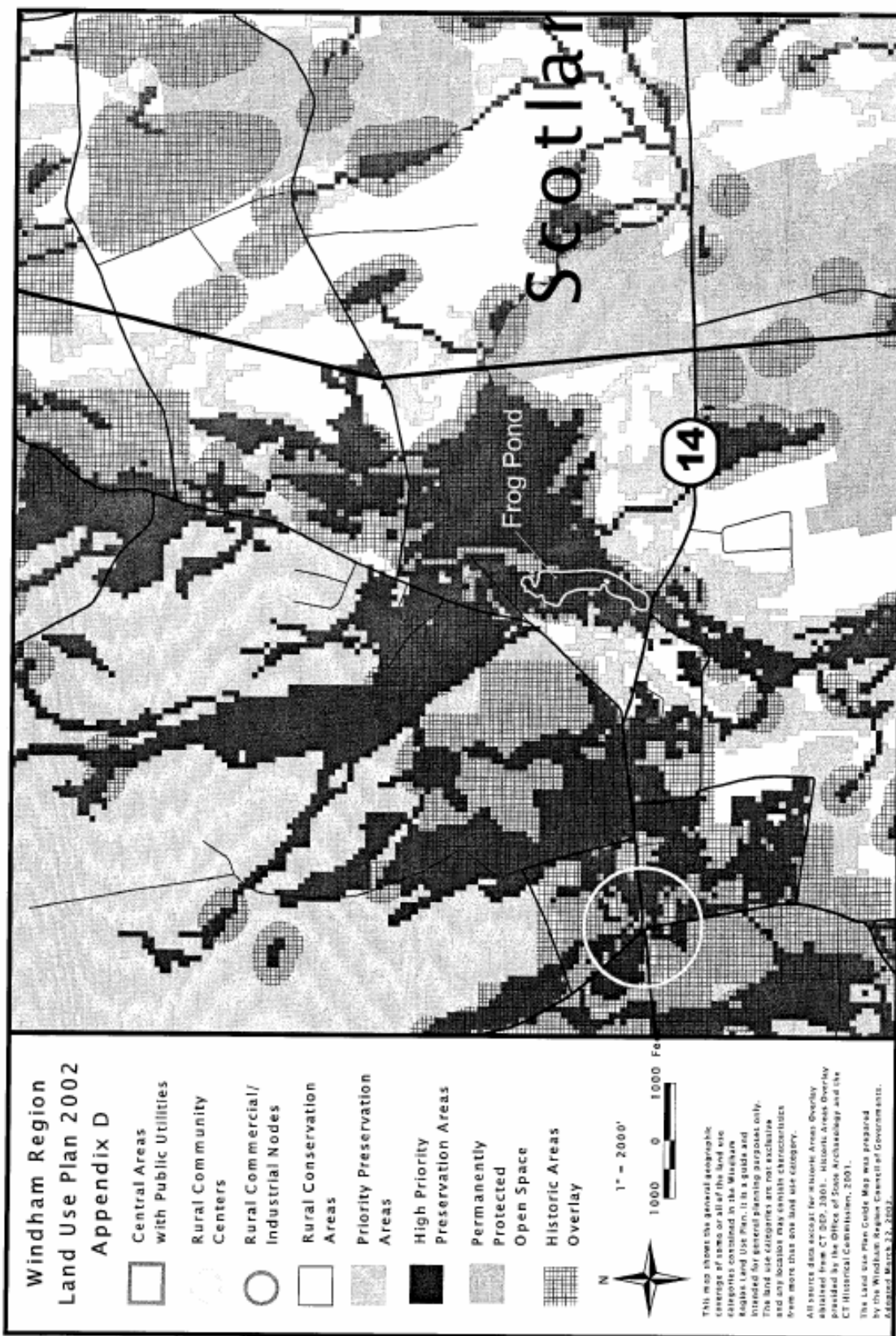
*Development within or near the historic areas overlay must protect the integrity of the resource. (p. 22).*

One of the stated policies for the Historic Areas Overlay is to “encourage activities that preserve or contribute to the character of historic places. . .” (p. 23)

The excavation of materials from Frog Pond at the scale proposed by this project would effectively destroy - for many years, if not permanently - this historic element which has been an important feature of Windham’s cultural past and has provided a focus for its present-day efforts. To the extent that it diminishes this historic/cultural resource, the proposed excavation would not be consistent with the goals and policies of the regional plan.

### **CONSISTENCY WITH STATE PLAN**

The general area of the site is designated as a “Preservation Area” in *the State Plan of Conservation and Development, 1998-2003* (currently adopted plan). The recommended State strategy for such an area is to “foster the identification of significant resource, heritage, recreation, and hazardous areas of statewide significance and advocate their protection by public and quasi-public agencies in their planning and investment decisions.”



Scotlar

Frog Pond

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## ARCHAEOLOGICAL REVIEW

A review of Connecticut's Archaeological Site Files and Maps shows the historic mill dam associated with Frog Pond and located in the project area. The dam was constructed in the mid-18th century as a mill impoundment. Proposed dredging of gravel deposits should have no adverse impact to the dam structure. However, the Office of State Archaeology requests an opportunity to inspect and photograph any portions of the dam exposed when the pond is drained to remove accumulated silts. Photographs and maps can be recorded as part of the historical documentation of Frog Pond.

Our office is prepared to assist the Town of Windham in complying the recommended photographs.



# ABOUT THE TEAM

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state and regional agencies. Specialists on the Team include geologists, biologists, foresters, soil specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area — an 86 town region.

**The services of the Team are available as a public service  
at no cost to Connecticut towns.**

## **PURPOSE OF THE TEAM**

The Environmental Review Team is available to help towns and developers in the review of sites proposed for major land use activities. To date, the ERT has been involved in reviewing a wide range of projects including subdivisions, landfills, commercial and industrial developments, sand and gravel excavations, elderly housing, recreation/open space projects, watershed studies and resource inventories.

Reviews are conducted in the interest of providing information and analysis that will assist towns and developers in environmentally sound decision-making. This is done through identifying the natural resource base of the project site and highlighting opportunities and limitations for the proposed land use.

## **REQUESTING A REVIEW**

Environmental reviews may be requested by the chief elected official of a municipality or the chairman of town commissions such as planning and zoning, conservation, inland wetlands, parks and recreation or economic development. Requests should be directed to the chairman of your local Soil and Water Conservation District and the ERT Coordinator. A request form should be completely filled out and should include the required materials. When this request is approved by the local Soil and Water Conservation District and the Eastern Connecticut RC&D Executive Council, the Team will undertake the review on a priority basis.

For additional information and request forms regarding the Environmental Review Team please contact the ERT Coordinator: 860-345-3977, Eastern Connecticut RC&D Area, P.O. Box 70, Haddam, Connecticut 06438.