

Title: The Position of the Mattabeseck Audubon Society
with regards to Application # 97-18 Gravel Excavation.

Biome: Transitional, from mixed open hardwood forest
to field regime.

Reviewed by: Mattabeseck Audubon Society

Date: June 4. 1998

Introduction:

An application was filed with the town of Portland Planning and Zoning Agency with the request to remove approximately 488,000 cubic yards of earth material from a 13.3 acre site adjacent to wetlands and Job's Pond.

I. Geology of Job's Pond and adjacent area

The Connecticut River crosses the Eastern Border Fault east of the Middletown basin, where it enters a channel through crystalline rocks, variously called the "Narrows," the "Straits," or Bodkin Rock. East of the fault this channel is joined by the buried channel of the preglacial course of the Connecticut River.

During the fall and winter of 1968 and the spring of 1969, Edward P. Laine, a geology major from Wesleyan University, undertook four seismic refraction surveys and three gravity surveys to investigate the existence of a buried former channel of the Connecticut River that he referred to as the Job's Pond Channel because, as he wrote, "Since most of the residents of the area who are aware of the possible existence of a buried channel seem to associate it with a periodic fluctuation in water level in Job's Pond."

Laine concluded that the channel does exist and that it runs with a NNW-SSE trend between Gildersleeve Island and Paper Rock in Portland, Connecticut.

As the ice margin of the Wisconsin ice sheet retreated, the lower Connecticut River channel became filled with glacial stratified deposits. These deposits are deltaic, the deltas being deposited in numerous, successive, small glacial lakes. Each lake was dammed by slightly older stratified deposits to the south. This process was repeated along the buried former channel of the Connecticut River. The deposits are called the lower Connecticut River series.

Melt water from the retreating glacier flowed across these deposits of the buried channel until glacial Lake Middletown, that had been expanding in the north part of the Middletown basin, entered the gap between Crow and Straits Hills and covered the recently laid down Connecticut River series deposits.

Along the thalweg of the preglacial channel of the Connecticut River deposits are more than 276 feet thick. Masses of stagnant ice dotted the deposits. As these ice blocks melted, glacial debris collapsed around them forming numerous kettle holes. Some kettle holes were perched above clays or fine soils allowing for standing water year round with little fluctuations. Other kettle holes had pourous gravel bottoms that allowed percolating water to drain away, and thus became dry kettle holes. Still others, of which Job's Pond is the most famous, have a widely fluctuating water level as the regional ground water rises or falls.

II. Ecology

The site of the proposed gravel operations is transitional from mixed open hardwood forest to a field regime. The habitat where forest meets field is called an ecotone. The ecotone is composed of a mixture of plant species from both field and forest habitats.

The open canopy hardwood forest consists in part of the following:

1. Trees

White Oak	<i>Quercus alba</i>
Black Oak	<i>Quercus velutina</i>
Red Oak	<i>Quercus rubrum</i>
(sweet) Black Birch	<i>Betula lenta</i>
American Beech	<i>Fagus grandifolia</i>
Sugar Maple	<i>Acer saccharum</i>
Shagbark Hickory	<i>Carya ovata</i>
Quaking Aspen	<i>Populus tremuloides</i>
Flowering Dogwood	<i>Cornus florida</i>
Greybirch	<i>Betula populifolia</i>
Ironwood	<i>Carpinus caroliniana</i>
Eastern Red Cedar	<i>Juniperis virginiana</i>
White Ash	<i>Fraxinus americana</i>
Black Cherry	<i>Prunus serotina</i>

2. Shrubs and Vines

Tartarian Honeysuckle	<i>Lonicera tatárica</i>
High Bush Blueberry	<i>Vaccinium corymobosum</i>
Nannyberry	<i>Viburnum lentago</i>
Japanese Barberry	<i>Bérberis Sp.</i>
Asiatic Bittersweet	<i>Celastrus orbiculatus</i>

Several species of ferns, including Christmas fern, *Polystichum acrostichoides*, dominate the herbaceous growth beneath the canopy.

The field regime and ecotone consists in part of the following:

1. Trees

Eastern Red Cedar	<i>Juniperis virginiana</i>
Flowering Dogwood	<i>Cornus florida</i>
Black Cherry	<i>Prunus serotina</i>
Quaking Aspen	<i>Populus tremuloides</i>
Red Oak	<i>Quercus rubrum</i>

2. Shrubs

Tartarian Honeysuckle	<i>Lonícera tatárica</i>
Bayberry	<i>Myrica pensylvanica</i>
Smooth Sumac	<i>Rhus glabra</i>

3. Grasses

Little Blue Stem	<i>Schizachynium scopanium</i>
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A glacial kettle hole pond lies adjacent to the site of the proposed gravel operation and is an important part of the area's ecology. The pond lies at the bottom of steep slopes, where mixed hardwoods such as oak (*Quercus alba*) and black birch (*Betula lenta*) grow. Red maples (*Acer rubrum*) and Spicebush (*Líndera benzóin*) grow adjacent to the pond's edge.

There is the presence of a healthy macroinvertebrate community, in both richness and density of species, including:

Backswimmers	<i>Notonectidae</i>
Whirligig Beetles	<i>Gyrinidae</i>
Water Boatmen	<i>Corixidae</i>
Water Scavenger Beetles	<i>Hydrophilidae</i>
Water Striders	<i>Gerridae</i>
Caddisflies	<i>Limnephilidae</i>

The pond is an important habitat for amphibians such as wood frogs (*Rana sylvatica*) and green frogs (*Rana clamitans*). Spotted salamanders (*Ambystoma maculatum*) converge on the pond in late March to breed. The spotted salamanders spend most of their lives hiding beneath rocks and downed tree limbs located in the terrain surrounding the pond.

Due to the presence of overhead power lines to the north of the proposed gravel site, a permanent shrub community exists there. This habitat in conjunction with the above mentioned open hardwood and field community and the glacial kettle pond attracts a wide variety of birds. At least 45 species of birds breed in the ecosystem made up of these diverse habitats including:

Blue Birds	<i>Sialia sialis</i>
Northern Orioles	<i>Icterus galbula</i>
Flickers	<i>Colaptes auratus</i>
Hairy Woodpeckers	<i>Picoides villosus</i>
Red-Bellied Woodpeckers	<i>Melanerpes carolinus</i>
Black and White Warblers	<i>Mniotilta varia</i>
Yellow Warbler	<i>Dendroica petechia</i>
Prairie Warbler	<i>Dendroica discolor</i>

The area is an especially important wintering ground for migrating northern American Robins (*Turdus migratorius*) and Cedar Waxwings (*Bombycilla cedrorum*), and is used by spring neo-tropical migrants—birds that winter in South and Central America and the Caribbean islands, and breed in the northern New England forests.

III. Reasons for concern

1. Dust from the excavation of earth material settling on the shallow kettle hole pond will create a siltation problem.
2. There is a need for a comprehensive land reclamation plan. If the application is approved, simple seeding of the excavation site is inadequate.

IV. Recommendations

1. If the application is approved, strict adherence to the reforestation program outlined by the Eastern Connecticut Resource Conservation and Development Environmental Review Team made in March of 1981 should be required. The Eastern Connecticut Resource Conservation and Development Environmental Review Team is a team composed of professionals from the Connecticut Department of Environmental Protection, acting on request of town land use commissions. The Team made the following recommendations with regard to previous excavations on YMCA land adjacent to the property under consideration in this application:

“The team suggests a reforestation program with native tree and shrub species which can withstand the infertile and droughty soil conditions which will be prevalent following excavation. ... Typical species suitable to these conditions would include oak (*Quercus velutina*, *Quercus coccinea*, *Quercus alba*), white pine (*Pinus stroba*), and pitch pine (*Pinus rigida*). Trees should be planted in “islands” preferably on the slopes of newly created berms. Trees used on the site should also be sizable when planted (e.g. at least 2 inch caliper, measured at 6 inches above the base of the trunk), not seedling size from the State Nursery. Planting materials selected for use on site should comply with the standards set forth in the “American Nurseryman’s Standards for Plant Materials.” Trees once planted will need maintenance during the first year while they become established on-site.

Native shrubs and ground covers should also be included in the plantings to provide future forest understory, a food source for wildlife. ... Species suitable to future soil conditions include high bush blueberry (*Vaccinium corymboosum*), huckleberry (*Gaylussaccia baccata*), mountain laurel (*Kalmia latifolia*), shining sumac (*Rhus copallina*), fragrant sumac (*Rhus aromatica*), nannyberry (*Viburnum lentago*), sweet fern (*Comptonia peregrina*), and bayberry (*Myrica pensylvanica*). Also suitable although they are not native species are Japanese holly (*Ilex crenata convexa*), Pfitzer Juniper (*Juniperus chinensis pfitzeriana*) and drooping leucothoe (*Leucothoe catesbasi*).

Groundcover on the site can be approached in three directions, hydro-seeding with a grass mixture, planting low growing shrubby species or a combination of the two. Hydro-seeding is a fast and easy approach to establishing groundcover on open areas. Grass mixtures can be used, or a more innovative approach—a native grass and wildflower mixture.

Addition of wildflower seed to the mix is more costly, but well worth the expense from the aesthetic standpoint. Shrub seed could also be added to the mix, allowing them to establish themselves while the area is still in the “open field” stage of development. This type of naturalistic approach to groundcover on-site will reduce long-term maintenance costs. ... It will also be favorable as a future food (seed) source for wildlife. Species suitable for this seed mix would include: red top grass (*Agrostis alba*), little blue-stem (*Andropogon scoparius*), Pennsylvania sedge (*Carex pensylvanica*), butterfly weed (*Asclepias tuberosa*), asters (*Aster spp.*), goldenrod (*Solidago spp.*), black-eyed Susan (*Rudbeckia hirta*). Low growing “shrubby” groundcovers suitable to the site include spring heath (*Erica carnea*), bearberry (*Arctostaphylos uva-ursi*), and low bush blueberry (*Vaccinium angustifolium*).

2. If this application is approved, a habitat conservation plan should be devised. The Job’s Pond watershed consists of approximately 570 acres. Within that watershed, there is presently no significant acreage dedicated to conservation of natural habitat and wildlife. The adjacent YMCA property is dedicated to active recreational use and playgrounds. Mattabeseck Audubon Society recommends that Northeast Utilities place a conservation restriction on the land to preserve the natural habitat.
3. If this application is approved, dust from the excavation of earth material shall not be controlled by the application of any asphalt, latex, or resin emulsions because of the danger they present to the underlying aquifer. Dust must be controlled through the use of water only, under a constant daily regimen.

Prepared by:

Lawrence Cyrulik
 Conservation Chairman
 Mattabeseck Audubon Society
 13 Bell Court
 Portland, CT 06480

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