**AGENDA**
Mansfield Conservation Commission
Wednesday, December 15, 2010
Audrey P. Beck Building
CONFERENCE ROOM B
7:30 PM

1. **Call to Order**

2. **Roll Call**

3. **Opportunity for Public Comment**

4. **Minutes**
   a. November 17, 2010

5. **New Business**
   a. IWA Referrals:
      - W1465 - N. Carlson - Single Family Residence, Dunham Pond Rd.
      - W1466 - P. Rich-Proposed Garage and Shed Additions, 42 Fern Road
   b. Draft Storrs Center Development Agreement (summary attached)
   c. 12/9/10 Presentation Slides-UConn Water System
   d. Other

6. **Continuing Business**
   a. Swan Lake Discharge Mirror Lake Dredging and other UConn Drainage Issues (see attached 11-18-10 communication from Baystate Environmental Consultants Inc.)
   b. 12/1/10 Draft Revisions to Mansfield's Subdivision Regulations (PZC Public Hearing Scheduled for 1/18/11)
   c. Four Corners Sewer and Water Study (no new information)
   d. UConn Agronomy Farm Irrigation Project
   e. Eagleville Brook Impervious Surface TMDL Project (no new information)
   f. Natchaug River Basin project (Awaiting Compact)
   g. UConn Hazardous Waste Transfer Station (no new information)
   h. Ponde Place Student Housing Project (see attached 12/2/10 letter from the Department of Public Utility Control & 11/16/10 letter from the Department of Public Health)
   i. CL&P "Interstate Reliability Project" (no new information)
   j. Other

7. **Communications**
   a. Minutes
      - Open Space (11/16/10) • PZC (11/15/10 & 12/6/10) • IWA (12/6/10)
   b. Inland Wetland Agent Monthly Activity Report
   c. 11-3-10 Letter from CT DEP Re: School House Brook Park Phragmites Treatments - Exemption of IWA Permit pursuant to CGS 22a-39
   d. November/December CT Wildlife
   e. Other Correspondence

8. **Other**

9. **Future Agendas**

10. **Adjournment**

PAGE
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Town of Mansfield
**CONSERVATION COMMISSION**
Meeting of 17 November 2010
Conference B, Audrey P. Beck Building
**(DRAFT) MINUTES**

*Members present:* Joan Buck (Alt.), Peter Drzewiecki (from 7:45), Neil Facchinetti (Alt.), Quentin Kessel, Scott Lehmann, John Silander. *Members absent*: Robert Dahn, Joan Stevenson, Frank Trainor.

**1.** The meeting was **called to order** at 7:32p by Chair Quentin Kessel.

**2.** The draft **minutes of the 20 October meeting** were approved as written.

**3. 2011 meeting schedule.** In 2011 the Commission will meet, as usual, on the third Wednesday of each month.

**4. Proposed revisions to subdivision regulations.** The proposed revisions of the subdivision regulations discussed at the October meeting have been revised anew. The pre-application Site and Neighborhood Features Plan and Conceptual Yield & Layout Plans would now be referred to the Commission for comment (5.2(a)(2) and 5.2(b)). Promoting cluster development has been added to the list of objectives that the PZC may consider in deciding whether to permit or require common driveways (7.10(a)(3) and 7.10(b)(4)).

Silander observed that reducing forest edges is a desirable design objective that might be included in 7.10(b)(3). Lehmann wondered whether clauses 1-3 in 7.10(a) were to be read disjunctively or conjunctively. {The previous wording of 7.10(a) is disjunctive, as indicated by "or" in the first sentence.} He also wondered whether requiring the PZC to "consider" 1-4 in 7.10(b) before approving common driveways serving 4-5 lots was strong enough, suggesting that such approval require finding that allowing a common driveway to serve 1-2 additional lots would "significantly promote" some of the objectives 1-4. {To considerations 1-3 of 7.10(a), 7.10(b) adds vehicular and pedestrian safety.} After some discussion, the Commission agreed to suggest revising the second paragraph of 7.10(b) to read:

> By a three-quarters (3/4) vote of the entire Commission (seven (7) votes), the maximum number of residential lots served by a common driveway may be increased to four (4) or five (5) lots, but only if the Commission finds that doing so would significantly (1) reduce environmental impacts, (2) enhance vehicular or pedestrian safety, (3) protect and preserve natural and man-made features, scenic views and vistas, interior forests, and/or other existing and potential conservation areas identified in the Plan of Conservation and Development (see map 21), or (4) promote cluster development and other design objectives of these regulations.

**5. Agronomy Farm.** After the 9/14 Town-Gown Committee meeting, the Storrs Heights Neighborhood Association submitted a number of follow-up questions to the University. The Dean of the College of Agriculture replied two weeks later, indicating willingness to engage an independent hydrologist, if one could be hired at reasonable cost, but not to monitor neighborhood wells (too costly) or to test for a wide range of hazardous substances (ditto). The Neighborhood Association would like to negotiate a memorandum of understanding on agronomy farm water issues with the University, but the Town-Gown Committee appears to have lost interest and is now claiming it lacks jurisdiction.

**6. Natchaug River Basin Conservation Compact.** This document is still a work in progress, so the Commission is not yet in a position to recommend that the Town Council agree to it. Kessel distributed another draft, but the Commission deferred discussion to the December meeting, hoping that a final version would be available by then.

**7. Open Space.** Mansfield voters have approved $1M bonding authority for open space over the next three years. Since it takes about two years to acquire land or conservation easements, the Open Space Preservation Committee is considering priorities. After some discussion, the Commission agreed unanimously (**motion:** Kessel, Silander) on the following general recommendation:

> To maximize area protected per unit cost, the Open Space Preservation Committee and the Town should consider using a significant portion of the open space bonding authority to purchase development rights to interior forestland.

**8. Adjourned** at 8:52p. Next meeting: 7:30p, Wednesday, 15 December 2010

Scott Lehmann, Secretary, 18 November 2010.

**APPLICATION FOR PERMIT**
**MANSFIELD INLAND WETLANDS AGENCY**
**4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268**
**TEL: 860-429-3334 OR 429-3331**
**FAX: 860-429-6863**

FOR OFFICE USE ONLY

File # W 1463
Fee Paid $185.00
Official Date of Receipt 11-29-10

*Applicants are referred to the Mansfield Inland Wetlands and Watercourses Regulations for complete requirements, and are obligated to follow them. For assistance, please contact Grant Meitzler, Inland Wetlands Agent at the telephone numbers above.*

Please print or type or use similar format for computer; attach additional pages as necessary.

**Part A - Applicant**

Name Neal Carlson

Mailing Address 91 Quiver Drive

South Dennis MA Zip 02660

Telephone-Home 508-694-6526 Telephone-Business

**Title and Brief Description of Project**

Single family house on existing lot (letter attached)

**Location of Project** 1 acre lot on Dunham Pond Rd, map 0021-55-28 1

**Intended Start Date** 11/23/10 (to put on market for sale)

**Part B - Property Owner** (if applicant is the owner, just write "same")

Name The Eric W Carlson Revocable Trust

Mailing Address 77 Briarwood Circle

Worcester MA Zip 01606

Telephone-Home 508-853-5059 Telephone-Business

✓ Owner's written consent to the filing of this application, if owner is not the applicant:

Signature Eric W. Carlson date Nov. 23, 2010

Applicant's interest in the land: (if other than owner) Neal is owner's son

**Part C - Project Description (attach extra pages, if necessary)**

1) Describe in detail the proposed activity here or on an attached page. **(See guidelines at end of application – page 6.)**
Please include a description of all activity or construction or disturbance:

a) ***in*** the wetland/watercourse - nothing

(b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is ***off*** your property

a) nothing in wetland

b)

1) First portion of driveway

2) Small portion of fill for grading around septic system

2) Describe the amount or area of disturbance (in square feet or cubic yards or acres):

a) ***in*** the wetland/watercourse – nothing

(b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is **off** your property

1) First 45' of driveway – 40 cu yds of excavation

2) Tail end of septic system – 30 cu yds of fill

3) Describe the type of materials you are using for the project:

1) Driveway - standard driveway construction, on site materials, gravel, paving 2) Septic system – as required

a) include ***type*** of material used as fill or to be excavated see above

b) include ***volume*** of material to be filled or excavated see above – Driveway 40 cu yds, Septic system 30 cu yds

4) Describe measures to be taken to minimize or avoid any adverse impacts on the wetlands and regulated areas (silt fence, staked hay bales or other Erosion and Sedimentation control measures).

Greater part of construction is more than 150 ft away from wetlands.
Sediment trap will be used during construction

**Part D - Site Description**

Describe the general character of the land. (Hilly? Flat? Wooded? Well drained? etc.)

Gentle slope towards Dunham Pond Rd
Wooded. Well drained.

**Part E - Alternatives**

Have you considered any alternatives to your proposal that would meet your needs and might have less impact on the wetland/watercourse? Please list these alternatives.

We definitely considered the alternatives and feel we came up with the best plan.

**Part F - Map/Site Plan (all applications)** 2 maps provided

1) Attach to the application a map or site plan showing **existing conditions** and the **proposed project** in relation to wetland/ watercourses. Scale of map or site plan should be 1" = 40'; if this is not possible, please indicate the scale that you are using. A sketch map may be sufficient for small, minor projects. **(See guidelines at end of application – page 6.)**

2) Applicant's map date and date of last revision 9/17/2010, Revised 10/01/2010
3) Zone Classification RAR90, existing lot of record
4) Is your property in a flood zone? ____Yes ____(No)____ Don't Know

**Part G - Major Applications Requiring Full Review and a Public Hearing**

See Section 6 of the Mansfield Regulations for additional requirements. NA

**Part H - Notice to Abutting Property Owners**

1) List the names and addresses of abutting property owners

Name Address

Fischl, Richard Michael + Pamela Lynn - 18 Dunham Pond Rd, Storrs CT 06268

Gilliam, Dorothy - 12 Dunham Pond Rd, Storrs CT 06268

Witryol, Sam - 77 Ball Hill Rd, Storrs CT 06268

Dunham Pond Assoc Inc - c/o Henry R Schwartz, 112 Dunham Pond Rd, Storrs CT 06268

✓2) **Written Notice to Abutters** . You must notify abutting property owners by certified mail, return receipt requested, stating that a wetland application is in progress, and that abutters may contact the Mansfield Inland Wetlands Agent for more information. Include a brief description of your project. ***Postal receipts of your notice to abutters must accompany your application.*** (This is not needed for exemptions).

**Part I - Additional Notices, if necessary**

NA 1) Notice to Windham Water Works is attached. If this application is in the public watershed for the Windham Water Works (WWW), you must notify the WWW of your project within 7 days of sending the application to Mansfield--sending it by certified mail, return receipt requested. Contact the Mansfield Inland Wetlands Agent to find out if you are in this watershed.

NA 2) Notice to Adjoining Town. If your property is within 500 feet of an adjoining town, you must also send a copy of the application, on the same day you sent one to Mansfield, to

the Inland Wetlands Agency of the adjoining town, by certified mail, return receipt requested.

3) The Statewide Reporting Form (attached) shall be part of the application and specified parts must be completed and returned with this application. Wetlands agent will fill out.

NA **Part J - Other Impacts To Adjoining Towns, if applicable**

1) Will a significant portion of the traffic to the completed project on the site use streets within the adjoining municipality to enter or exit the site?___Yes__(No)___Don't Know

2) Will sewer or water drainage from the project site flow through and impact the sewage or drainage system within the adjoining municipality?____ Yes ___(No)____ Don't Know

3) Will water run-off from the improved site impact streets or other municipal or private property within the adjoining municipality?____ Yes ___(No)____Don't Know

**Part K - Additional Information from the Applicant** attached

Set forth (or attach) any other information which would assist the Agency in evaluating your application. (*Please provide extra copies of any lengthy documents or reports, and extra copies of maps larger than 8.5" x 11", which are not easily copied.)*

**Part L - Filing Fee**

Submit the appropriate filing fee. (Consult Wetlands Agent for the fee schedule available in the Mansfield Inland Wetlands and Watercourses Regulations.)

____ $365. _____ $110. ____ $60. ____ $25. $ 185 -

*Note: The Agency may require you to provide additional information about the regulated area which is the subject of the application, or about wetlands or watercourses affected by the regulated activity. If the Agency, upon review of your application, finds the activity proposed may involve a "significant activity" as defined in the Regulations, additional information and/or a public hearing may be required.*

***The undersigned applicant hereby consents to necessary and proper inspections of the above mentioned property by members and agents of the Inland Wetlands Agency, at reasonable times, both before and after the permit in question has been granted by the Agency.***

Eric W. Carlson — Applicant's Signature

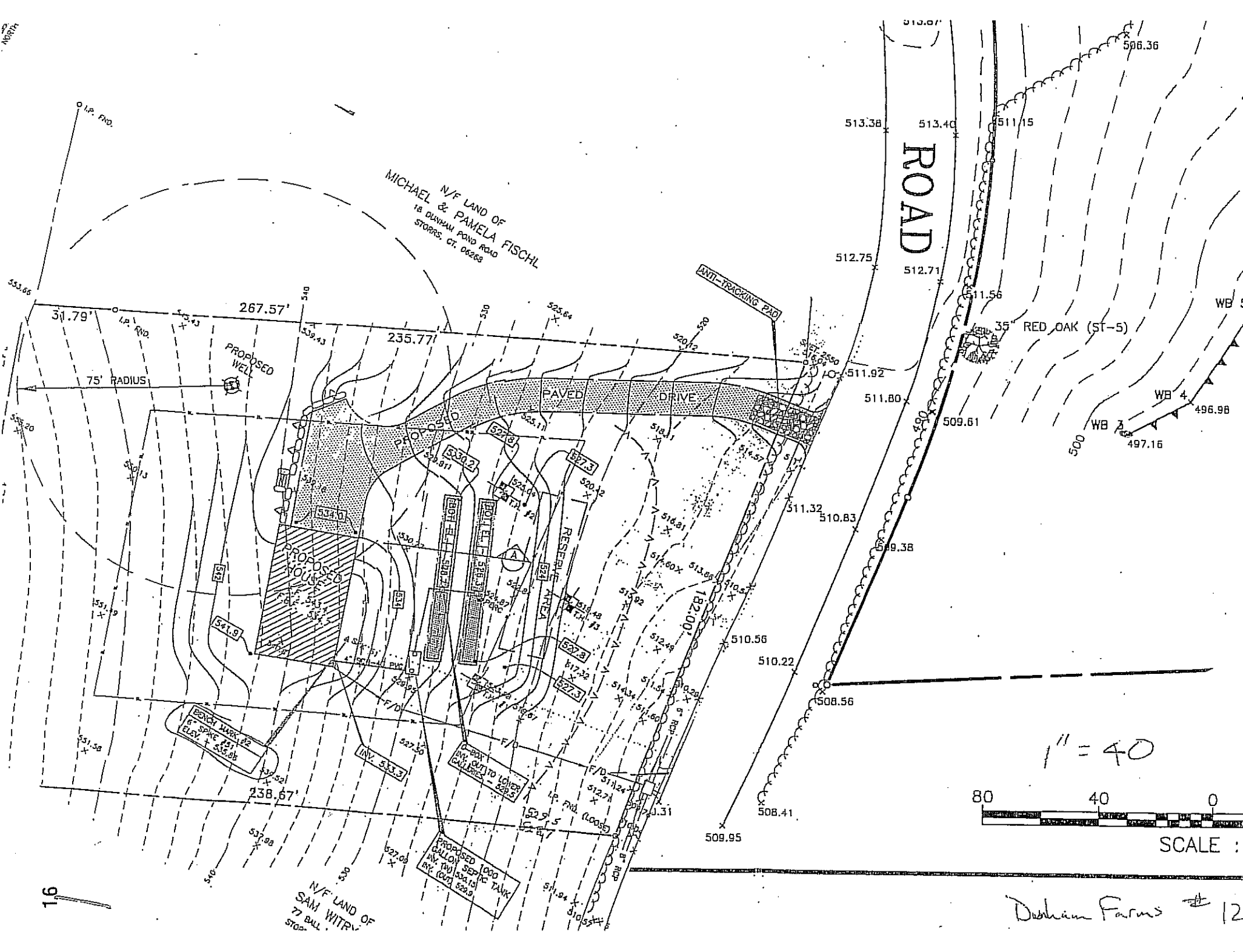
Nov. 23, 2010 — Date

To:
Mansfield Inland Wetlands Agency
4 South Eagleville Road
Storrs CT 06268

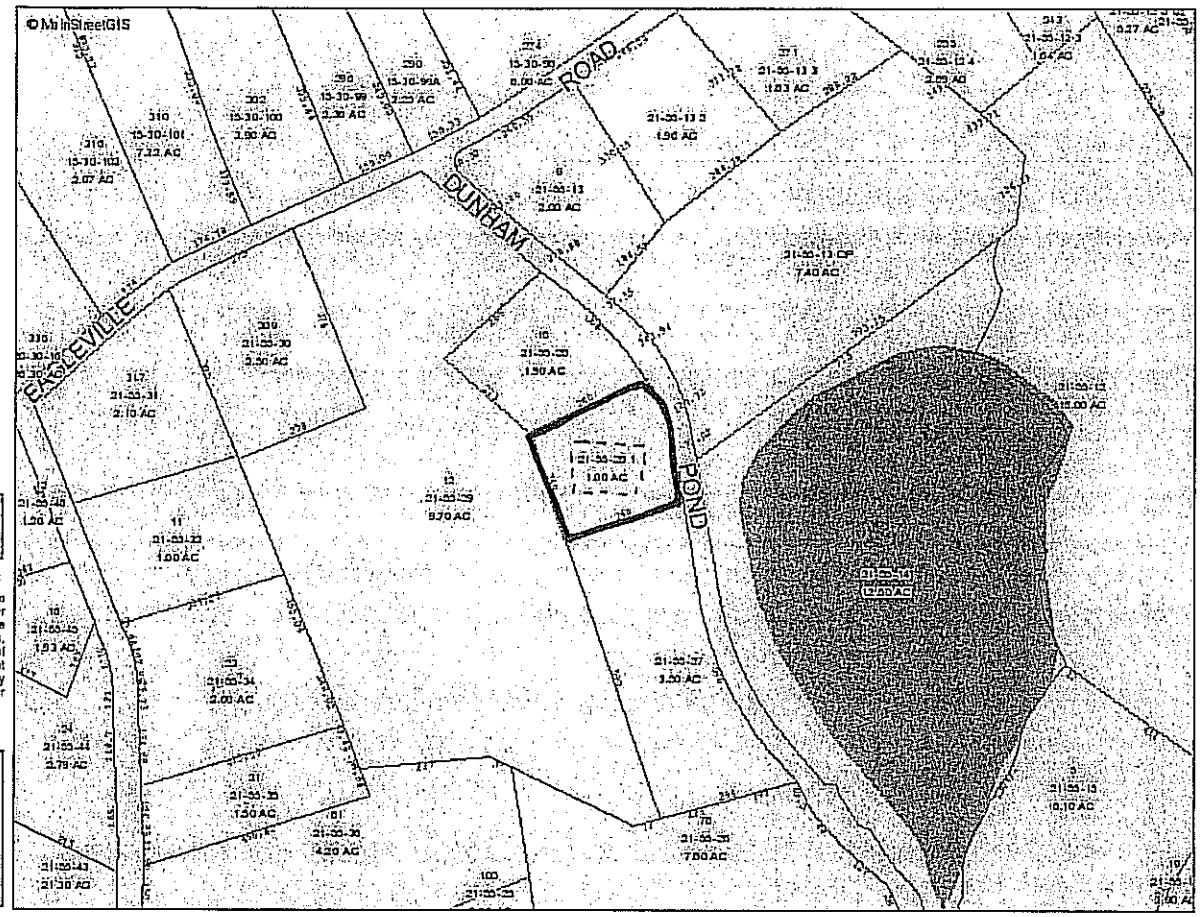
Application for Permit for Lot 0021-55-28 1
Part K – Additional information

We would like to put this lot up for sale as an "approved building lot" for a single family dwelling. We are making this application for a Wetlands License, not so that we can build a house ourselves, but in order to sell the lot.

Neal Carlson
for Eric Carlson


N/F LAND OF
MICHAEL & PAMELA FISCHL
18 DUNHAM POND ROAD
STORRS, CT. 06268
ROAD
267.57'
31.79'
235.77'
238.67'
75' RADIUS
PROPOSED WELL
PROPOSED HOUSE
PAVED DRIVE
ANTI-TRACKING PAD
RESERVE AREA
BOTTOM ELEV. 528.00
BOTTOM ELEV. 528.00
1200 GALLON SEPTIC TANK
INV. IN 533.3
INV. OUT TO LOWER CULTRESS - SEP 5
PROPOSED 1000 GALLON SEPTIC TANK
INV. IN 524.13
INV. OUT 523.9
BENCH MARK #2
6" SPIKE #51
ELEV. = 535.86
35" RED OAK (ST-5)
I.P. FND.
I.P. FND (LOOSE)
N/F LAND OF
SAM WITRY
77 BALL
STOR
1" = 40
80
40
0
SCALE :
Dunham Farms
16

Town of Mansfield, Connecticut




A Address No.
A Parcel ID
A Parcel Area
A Lot Dimensions
A Road Names
Zoning
Roadway
Roads
Streams
Water
Parcels

MainStreetGIS

www.mainstreetgis.com

MainStreetGIS makes no warranties, expressed or implied, concerning the accuracy, completeness, reliability, or suitability of these data and does not assume any liability associated with the use or misuse of this information.

1 In = 281.36 ft

1 : 3376.32

Data Currency: Property Records 10/8/2009 GIS Parcel Lines 10/1/2009

0 120 240 ft

# Town of Mansfield

CURT B. HIRSCH
ZONING AGENT
HIRSCHCB@MANSFIELDCT.ORG

AUDREY P. BECK BUILDING
4 SOUTH EAGLEVILLE ROAD
MANSFIELD, CT 06268-2599
(860) 429-3341

November 18, 2010

Peter Millman
Four Corners Real Estate1733 Storrs Road
Storrs, CT 06268

**Re: Carlson lot, Dunham Pond Rd., Mansfield, CT**
**Assessor's map 21, Block 55, Lot 28-1**
**Plan reference: 10/1/10 plan prepared by Datum for Eric Carlson**

Dear Mr. Millman:

You have requested a status letter regarding the undeveloped lot owned by Carlson and located on Dunham Pond Road. The subject lot is about one-acre in area with deeded frontage of 182 feet and is located in a RAR-90 zone. It is a non-conforming lot-of-record with respect to lot frontage and lot area. The conceptual development plan referenced above has been approved by the Eastern Highlands Health District for septic system design. The plan is also in compliance with the applicable items in the Schedule of Dimensional Requirements of the zoning regulations. Lot development may also be subject to the Inland Wetland Regulations as it appears that a small amount of the site activity will fall within the regulated area requiring a Wetlands License. There will also be a Public Works Permit required for connecting the driveway to a town road. With respect to the referenced plan, these are routine applications that should not affect the proposed activity. The receipt of these two approvals would complete the permitting process and this would be an approved building lot pending of course the approval of specific house construction plans.

Sincerely,

Curt B. Hirsch

Curt Hirsch
Zoning Agent

Eastern Highlands Health District
4 South Eagleville Road • Mansfield CT 06268 • Tel: (860) 429-3325 • Fax: (860) 429-3321

## PLAN APPROVAL MEMO

October 26, 2010

Edward Pelletier
Datum Engineering & Surveying, LLC
132 Conantville Rd
Mansfield Center, CT 06250

Re: **Subsurface Sewage Disposal System Plan for:** Engineered septic design for new 3-bedroom single family dwelling
**Address:** Dunham Pond Rd Mansfield CT
**Plan Designed by:** Gerald Hardisty, PE
**Plan Date:** 9/17/2010, **Latest Revision Date:** 10/1/2010

Dear Edward Pelletier:

The above referenced plan has been reviewed for compliance with the Connecticut Public Health Code and Technical Standards. **The plan is approved with the following conditions:**

1. The plan is approved for a single-family dwelling with 3 bedrooms.
2. The system must be field staked by a licensed surveyor prior to installation, and the field staking must be supervised by the engineer.
3. The supervising engineer must submit a completed and signed "Staking Verification Memo" (EHHD form) to the health district.
4. A minimum of 5 feet of select fill is required around the leaching structures, which include the surrounding crushed stone, and a minimum of 5 feet of common fill to surround that.

Please note that this plan approval is not an approval to construct the sewage disposal system.
If not already done, a completed application and fee for the Permit to Construct the Sewage Disposal System must be submitted to the health district for review and approval. The permit will be approved when all above noted conditions of approval have been met.

If you have any questions, please call the health district office at 860-429-3325.

Sincerely,

Geoffrey W. Havens
Sanitarian II

Cc:

PAGE
BREAK

**APPLICATION FOR PERMIT**
**MANSFIELD INLAND WETLANDS AGENCY**
**4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268**
**TEL: 860-429-3334 OR 429-3330**
**FAX: 860-429-6863**

FOR OFFICE USE ONLY

File # W 1466
Fee Paid $185 -
Official Date of Receipt 12-6-10

*Applicants are referred to the Mansfield Inland Wetlands and Watercourses Regulations for complete requirements, and are obligated to follow them. For assistance, please contact Grant Meitzler, Inland Wetlands Agent at the telephone numbers above.*

Please print or type or use similar format for computer; attach additional pages as necessary.

**Part A - Applicant**

Name PETER RICH PBR INVESTMENTS

Mailing Address 42 FERN RD

MANSFIELD Zip 06268

Telephone-Home 860-423-6735 Telephone-Business _____

**Title and Brief Description of Project**

ADD A (1) CAR GARAGE ON EXISTING SLAB 13'X21'

ADD A LEAN TO ROOF " " " 8'X12'

**Location of Project** WEST SIDE OF EXISTING GARAGE; NORTH SIDE OF EXISTING SHED

**Intended Start Date** UPON APPROVAL OF ALL NECESSARY PERMITS

**Part B - Property Owner** (if applicant is the owner, just write "same")

Name _____

Mailing Address SAME

_____ Zip _____

Telephone-Home _____ Telephone-Business _____

Owner's written consent to the filing of this application, if owner is not the applicant:

Signature _____ date _____

Applicant's interest in the land: (if other than owner) _____

**Part C - Project Description (attach extra pages, if necessary)**

1) Describe in detail the proposed activity here or on an attached page. (**See guidelines at end of application – page 6.**)
Please include a description of all activity or construction or disturbance:

a) ***in*** the wetland/watercourse
b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is ***off*** your property

1. See ATTACHMENTS

a. NONE

b. ADDING A 13'x21' (1 BAY) TO AN EXISTING 3 BAY GARAGE WHICH WILL BE CONSTRUCTED ON AN EXISTING SLAB.

ADDING AN 8'x12' LEAN TO AND BEING ATTACHED TO AN EXISTING SHED. THIS WILL TAKE PLACE ON AN EXISTING SLAB

2) Describe the amount or area of disturbance (in square feet or cubic yards or acres):

a) ***in*** the wetland/watercourse
b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is **off** your property

NONE

3) Describe the type of materials you are using for the project: WOOD FRAMING; FIBER GLASS SHINGLES; CEDAR SHAKES

a) include ***type*** of material used as fill or to be excavated NONE
b) include ***volume*** of material to be filled or excavated NONE

4) Describe measures to be taken to minimize or avoid any adverse impacts on the wetlands and regulated areas (silt fence, staked hay bales or other Erosion and Sedimentation control measures).

NONE NEEDED

**Part D - Site Description**

Describe the general character of the land. (Hilly? Flat? Wooded? Well drained? etc.)

2½ Ac., half open, half wooded about an 8% slope. Well drained

**Part E - Alternatives**

Have you considered any alternatives to your proposal that would meet your needs and might have less impact on the wetland/watercourse? Please list these alternatives.

NONE

**Part F - Map/Site Plan (all applications)**

1) Attach to the application a map or site plan showing **existing conditions** and the **proposed project** in relation to wetland/ watercourses. Scale of map or site plan should be 1" = 40'; if this is not possible, please indicate the scale that you are using. A sketch map may be sufficient for small, minor projects. **(See guidelines at end of application – page 6.)**

2) Applicant's map date and date of last revision 12-01-2010
3) Zone Classification RAR 40
4) Is your property in a flood zone? _____Yes __X__No _____ Don't Know

**Part G - Major Applications Requiring Full Review and a Public Hearing**

See Section 6 of the Mansfield Regulations for additional requirements.

**Part H - Notice to Abutting Property Owners**

1) List the names and addresses of abutting property owners

| Name | Address |
|---|---|
| DONNA CLAUSON | 48 FERN RD. |
| TOM COCHRAN | 32 FERN RD. |
| ESTATE OF MICHAEL DILAJ | ? |
| D. NUMACK | 666 BROWNS RD. |

2) **Written Notice to Abutters** . You must notify abutting property owners by certified mail, return receipt requested, stating that a wetland application is in progress, and that abutters may contact the Mansfield Inland Wetlands Agent for more information. Include a brief description of your project. ***Postal receipts of your notice to abutters must accompany your application.*** (This is not needed for exemptions).

**Part I - Additional Notices, if necessary**

1) Notice to Windham Water Works is attached. If this application is in the public watershed for the Windham Water Works (WWW), you must notify the WWW of your project within 7 days of sending the application to Mansfield--sending it by certified mail, return receipt requested. Contact the Mansfield Inland Wetlands Agent to find out if you are in this watershed.

2) Notice to Adjoining Town. If your property is within 500 feet of an adjoining town, you must also send a copy of the application, on the same day you sent one to Mansfield, to

the Inland Wetlands Agency of the adjoining town, by certified mail, return receipt requested.

3) The Statewide Reporting Form (attached) shall be part of the application and specified parts must be completed and returned with this application.

**Part J - Other Impacts To Adjoining Towns, if applicable**

1) Will a significant portion of the traffic to the completed project on the site use streets within the adjoining municipality to enter or exit the site?___Yes___No ✓ Don't Know

2) Will sewer or water drainage from the project site flow through and impact the sewage or drainage system within the adjoining municipality?____ Yes ____No ✓ Don't Know

3) Will water run-off from the improved site impact streets or other municipal or private property within the adjoining municipality?____ Yes ____No ✓ Don't Know

**Part K - Additional Information from the Applicant**

Set forth (or attach) any other information which would assist the Agency in evaluating your application. (*Please provide extra copies of any lengthy documents or reports, and extra copies of maps larger than 8.5" x 11", which are not easily copied.)*

**Part L - Filing Fee**

Submit the appropriate filing fee. (Consult Wetlands Agent for the fee schedule available in the Mansfield Inland Wetlands and Watercourses Regulations.)

___$1,000. ___ $750. ___$500. ___$250. ___$125. ____$100. ___$50. ___$25.

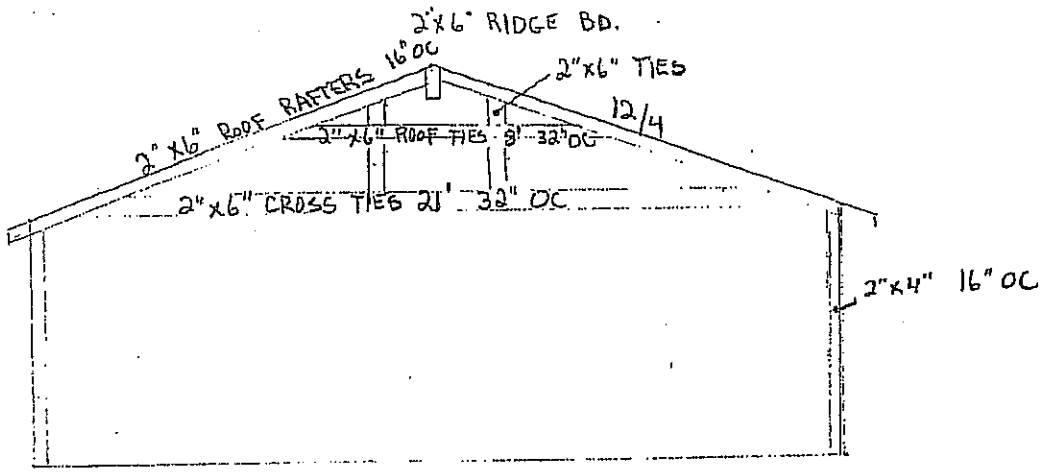
___ $60 State DEP Fee

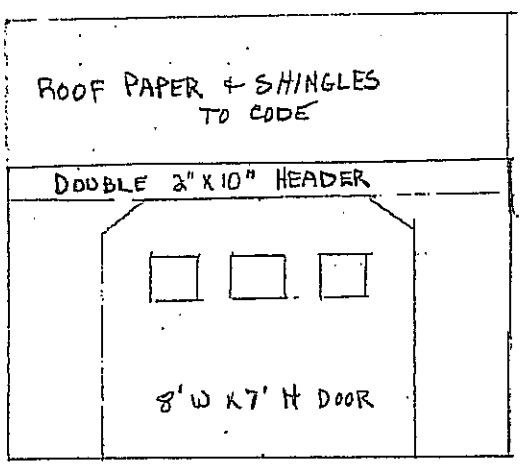
*Note: The Agency may require you to provide additional information about the regulated area which is the subject of the application, or about wetlands or watercourses affected by the regulated activity. If the Agency, upon review of your application, finds the activity proposed may involve a "significant activity" as defined in the Regulations, additional information and/or a public hearing may be required.*

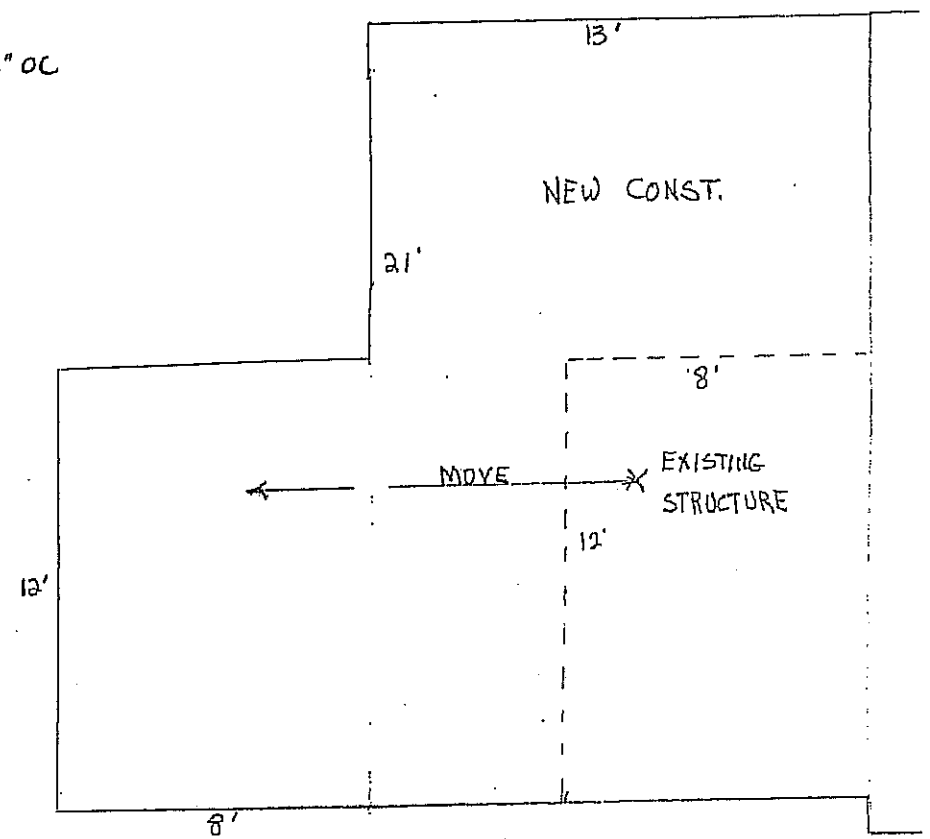
***The undersigned applicant hereby consents to necessary and proper inspections of the above mentioned property by members and agents of the Inland Wetlands Agency, at reasonable times, both before and after the permit in question has been granted by the Agency.***

Peter W. Rich _____ 12-06-10 _____

Applicant's Signature Date


2"x6" RIDGE BD.
16" OC
2"x6" TIES
12/4
2" x6" ROOF RAFTERS
2"x6" ROOF TIES 8' 32" OC
2"x6" CROSS TIES 21' 32" OC
2"x4" 16" OC


ROOF PAPER & SHINGLES
TO CODE
DOUBLE 2" X 10" HEADER
8' W X 7' H DOOR

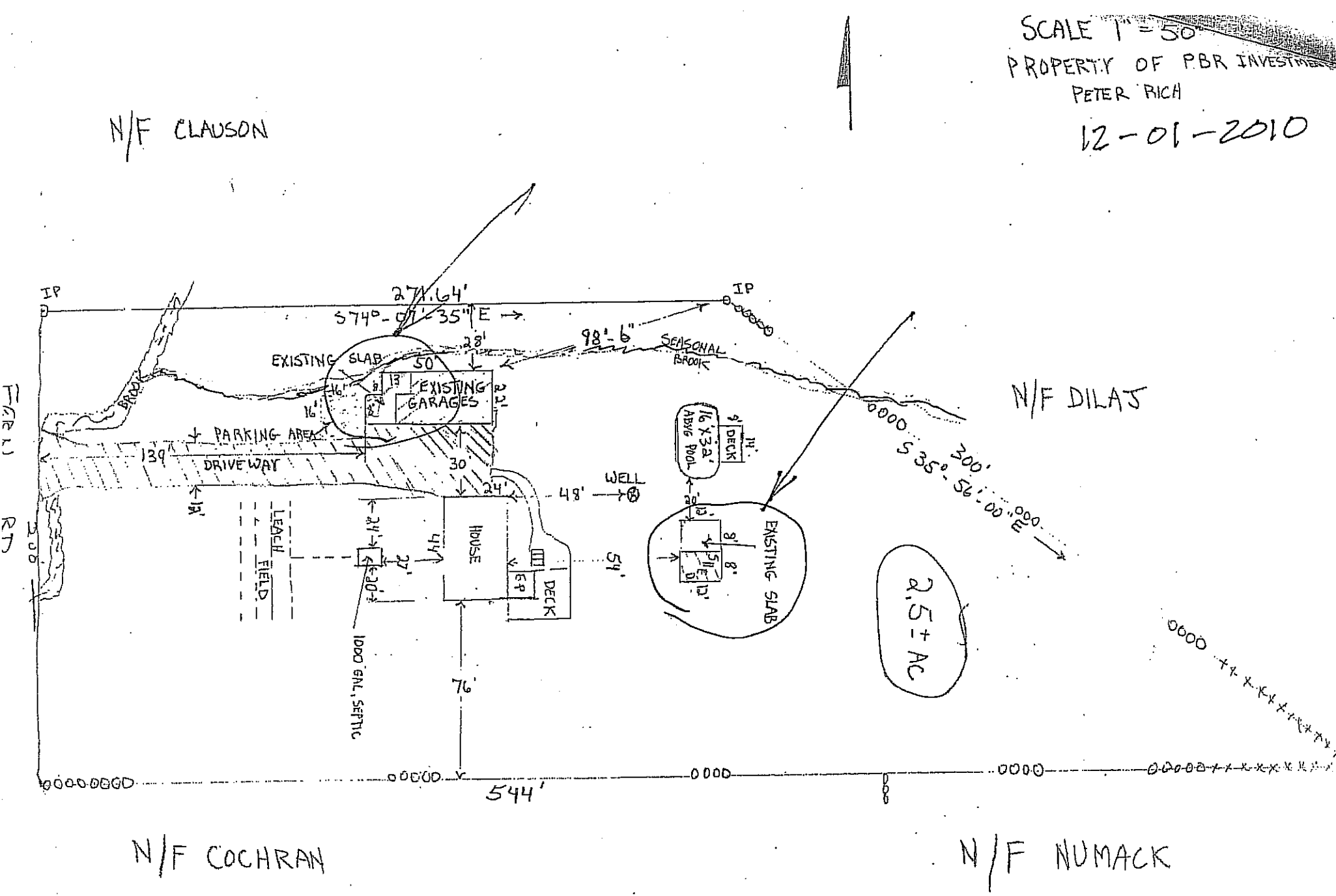

13'
NEW CONST.
21'
8'
MOVE
EXISTING
STRUCTURE
12'
12'
8'

SCALE 1" = 50'

PROPERTY OF PBR INVESTMENTS

PETER RICH

12-01-2010



**Storrs Center Development Agreement, Phases 1A and 1B**
**Town of Mansfield, SCA and EDR**
**Outline of Key Terms**
**12/09/10 Draft**

## Objectives

- Adhere to community's vision for Storrs Center
  - Create a civic town center
  - Mixed use project
  - Apply principles of intelligent land use and sustainability
  - Enhance town's tax base
- Maximize use of federal and state grant funds to support public infrastructure
- Finance any Town contribution to capital elements of the project via NET revenue derived from completed phases of the project
- Design operational structure of garage and parking system to be ultimately self-supporting; parking revenues to cover costs re operation, maintenance and deferred maintenance
- Negotiate an agreement that is fair and equitable and is cognizant of the interrelationship between the parties

(NOTE: This is intended to be a 3-party agreement – Town, LeylandAlliance (doing business as SCA) and EDR. SCA and EDR are collectively referred to as the "developer parties.")

## Article 1 - Definitions & Recitals

- See "Force Majeure Event" which provides the permitted exceptions to any party's obligations to perform its obligations

## Article 2 – Phases 1A & 1B

- Acknowledges the relationship between the parties and the fact that the developer parties have commissioned plans for the project. Highlights the force majeure section and references the Phase 1A/1B schedule.

## Article 3 – Development of Intermodal/Parking Facility

- Highlights the obligations of the Town to construct the 540-space facility using grant proceeds. Town to develop alternate design (650 spaces) if budget allows. If aggregate estimated costs exceed grant funds Town has the right to adjust project scope to reduce costs, but must consult with developer parties on any material changes. Town must reasonably consider developer parties' reasonable comments.
- Town shall construct alternate design if budget allows; developer parties have right to fund any budget deficiency to allow construction of alternate design.
- SCA shall convey land to Town for $0 (Town may take directly from UConn)
- Parties acknowledge that they have asked DECD to modify grant agreement to proceed to construction on a more limited first phase (1A/1B as opposed to all of Phase 1)

**Article 4 – Development of Storrs Road and Dog Lane Improvements**

- Highlights obligations of the Town to construct improvements using grant proceeds. If aggregate estimated costs exceed grant funds Town has the right to adjust project scope to reduce costs, but must consult with developer parties on any material changes. Town must reasonably consider developer parties' reasonable comments.
- SCA shall convey land to Town for $0 (Town may take directly from UConn)

**Article 5 – Development of Transit Pathway Improvements (Village Street)**

- Highlights obligations of the Town to construct improvements using grant proceeds. SCA to provide 20% match less amount of fire marshal fees ($371,000).
- (Design on the element of the project has not begun yet). If aggregate estimated costs exceed grant funds Town has the right to adjust project scope to reduce costs, but must consult with developer parties on any material changes. Town must reasonably consider developer parties reasonable comments. Town has right to reject federal grant if Town cannot reasonably adjust scope of project to come within budget, in which case the parties shall cooperate to otherwise construct Village Street, such as using other grant funds or SCA using its match funds to build less expensive road.
- SCA shall convey land to Town for $0 (Town may take directly from UConn)

**Article 6 – Environmental**

- Highlights obligations of SCA to investigate and clean-up any environmental contamination on land to be conveyed to the Town. SCA to deliver phase 1 environmental reports by 12/31/10 (will need to extended).
- If, based upon environmental reports or notice from grant agency, Town cannot accept a particular parcel, the parties will cooperate to seek alternatives. Town reserves right to reject conveyance.
- SCA shall indemnify and defend the Town if SCA fails to meet its obligations under this article
- Parties recognize that SCA has executed agreements with UConn and UConn may have some responsibility to share remediation costs, which shall not relieve SCA of its obligations to the Town

**Article 7 – Governmental Approvals**

- Highlights obligations of the parties to obtain necessary permits and approvals for improvements under their control
- States that execution of development agreement is not intended to supplant or influence role of Town's permitting authorities (e.g. PZC, IWA)
- Highlights responsibilities of parties to satisfy conditions of state traffic commission (STC) certificate for road improvements; acknowledges that parties are seeking relief from obligation to post $6M bond (we anticipate that ConnDOT will approve this request) – if request is not approved, Town shall be required to post the bond using grant proceeds (estimated costs $25-$30,000)

## Article 8 – Developer Party Improvements

- Highlights obligations of developer parties to construct private improvements
  - Phase 1A minimum of 25,000 square feet of commercial/retail office and 120 residential units (restriction against dormitory style construction)
  - Phase 1B minimum of 35,000 square feet of commercial/retail office and 140 residential units (restriction against dormitory style construction)
- Highlights obligations of EDR to construct $1.765M of certain infrastructure (improvements to Dog Lane; road between Dog Lane and Village Street; improvements to post office site; Town Square improvements; road on eastern side of Town Square). If estimated costs exceed budget, the developer parties have the right to adjust project scope to reduce costs, but must consult with the Town on any material changes. The developer parties must reasonably consider the Town's reasonable comments. Any remaining surplus to be allocated to other public improvements, relocation costs or other public portions of project.
- If cost of public improvements or developer party infrastructure exceeds budget, and parties cannot reduce scope to come within budget, SCA shall fund deficiency in exchange for future tax abatement with an annual return of 8%, subject to terms to be agreed upon by Town and SCA
- Provides for tax abatement to EDR for Phases 1A and 1B; 7-yr schedule for both abatement periods spread over 8 years. Aggregate amount approx $4.5M ($3M at 8% discount rate).
- Provides for cap on building & fire marshal permit fees. Cap is designed for full cost recovery of direct inspection services and set at $12/$1000 of construction; Town has right to adjust fees every 3 years based upon CPI. Town will seek to amend its building and fire marshal fee schedule to allow for lower fees of this type and value, as present permit fees exceed cost to inspect projects of this scope. If amendment is not approved, Town shall refund excess fees via tax abatement on future phases.

## Article 9 – Parking

- Parking to consist of structure (garage), surface (Dog Lane lot) and on-street (interior streets, Storrs Road)
- EDR shall lease 425 spaces (approx 350-375 in garage) at an initial rate of $60/month per space; rate shall be adjusted every 3 years according to CPI, not to exceed 10% in any 3-yr period. Term of "residential component parking term" is set at 98 years. EDR to lease 212 spaces at completion of 1A and balance at completion of 1B; EDR spaces to be segregated in structure.
- Town shall fund "Repair and Replacement Reserve" on annual basis to fund capital repairs
- Town to carry specified replacement cost insurance through current carrier. In the event of casualty covered by Town's insurance (or casualty that would have been covered if Town carried required insurance), Town shall restore garage to substantially same condition prior to casualty. If casualty not covered by specified insurance, Town has right to terminate lease and developer parties have right to acquire property and balance of reserve fund for $1 "as is with all faults."

- If garage is not completed in accordance with schedule, the Town will use reasonable commercial efforts to provide interim substitute parking (EDR shall pay for such interim parking)
- During first 50 years of parking garage term, Town to maintain garage in good order and condition and to make all necessary capital improvements, using funds available in reserve fund as well as other Town funds
- Beginning in 51st year, Town to continue to maintain garage in good order and condition but liability limited to funds available in reserve. If Town determines garage needs to be rebuilt Town may terminate lease and developer parties have right to acquire property and balance of reserve fund for $1 "as is with all faults."
- The Town shall set the parking rates for parking under its control, subject to SCA's reasonable approval. SCA shall set the parking rates for parking under its control, subject to the Town's reasonable approval.
- During Public Garage Term, Town may not transfer garage to private entity but may transfer ownership to public agency subject to developer parties' reasonable approval
- Town shall set the parking rates for parking under its control, subject to SCA's reasonable approval. SCA shall set the parking rates for parking under its control, subject to the Town's reasonable approval.
- Highlights obligations of SCA to assume management of parking for an initial 7-yr period. SCA shall collect all proceeds and assume liability for any operational deficit. Any net operating income (NOI) to be shared as follows:
  - 100% to reimburse SCA for any previous operating deficit
  - 50% to Town and 50% to SCA until reserve is fully funded
  - 100% to SCA as its sole compensation for operating garage
- SCA and the Town will agree to a parking management agreement that shall be executed no later than the commencement of construction of the garage

**Article 10 – Relocation**

- Provides that eligible relocation costs for existing tenants within the Phase 1A/1B area shall be split 50/50 between the Town and SCA (consistent with our current letter of understanding)

**Article 11 – Town Square**

- Highlights the obligations of the Town to maintain the square and that the property shall be conveyed to the Town for $0
- Provides that SCA shall have the exclusive right to license the square for portable retail kiosks for an initial term of 10 yrs, for an annual license fee equal to 20% of NOI. Town shall have right to approve SCA specific commercial uses of the square, including the number, location and use of kiosks.
- Developer parties have right to use square for events and marketing purposes, subject to Town ordinances, rules and regulations
- Stipulates that provisions of license agreement between Town and SCA ("Town Square License Agreement") shall not interfere with public's First Amendment Rights

**Article 12 – Public Streets, Easements and Construction Coordination**

- Highlights responsibilities of the parties re dedication of public streets, the negotiation of easements and licenses, construction coordination, safety precautions and due diligence inspections

**Article 13 – Conveyance of Open Spaces**

- Provides that Town agrees to accept conveyance of conservation areas, subject to conditions of open space acquisition policy

**Article 14 – Cooperation**

- Highlights responsibilities of the parties to cooperate in good faith and in a reasonable manner

**Article 15 – Dispute Resolution**

- Establishes dispute resolution process consisting of negotiation, mediation and arbitration

**Article 16 – Representations & Warranties**

- Highlights representations & warranties of the parties, including due authorization, control of real property and litigation & default

**Article 17 – Restrictions on Transfer & Default**

- Establishes the provisions for a transfer of interest and mortgages. Developer shall have the right to enter into individual space leases. Town's tax levies shall be superior to any mortgage.

**Article 18 – Defaults and Remedies**

- Establishes occurrences that constitute default as well as remedies. The agreement may not be terminated during dispute resolution proceedings.

**Article 19 – Special Conditions**

- Highlights the conditions that the developer must satisfy before the Town initiates construction on the garage ( to make sure developer is ready to proceed):
  - Obtain building permits for Phase 1A
  - Construction of Phase 1A has commenced
  - Acquire title to all Phase 1 and other necessary property
  - Obtain binding construction loan commitments
  - UConn/SCA infrastructure agreements have not been amended in manner that would materially affect project without approval from the Town
  - No developer party has defaulted under the agreement
  - DECD has approved the modification to garage grant agreement
  - Provide evidence of ability to complete improvements in accordance with project schedule

- Provides the conditions precedent to the developer's obligations
  - The Town has issued all building permits for phase 1A improvements
  - The Town has confirmed that it is prepared to enter into construction contracts for the public improvements and expects to complete the improvements on schedule
  - The Town has not defaulted under the agreement

**Article 20 – Notices**

- Provides the notice provisions

**Article 21 – Restricted Uses and Transfers**

- Prohibits any facility that would constitute an adult-oriented establishment
- Restricts developer from transferring private improvements to tax-exempt entities for a period of 20 years, without the consent of the Town of Mansfield
- Provides that restrictions run with the land

**Article 22 – Insurance and Indemnification**

- Provides insurance to be provided during construction period, the acceptability of insurers, indemnification of the Town and indemnification of the developer parties

**Article 23 – Business Improvement District; SCA Assistance**

- Provides that parties will cooperate to investigate forming business improvement district (to provide additional funding for maintenance, marketing, programming, etc.
- Provides that SCA is willing to provide construction services to Town for reasonable fee

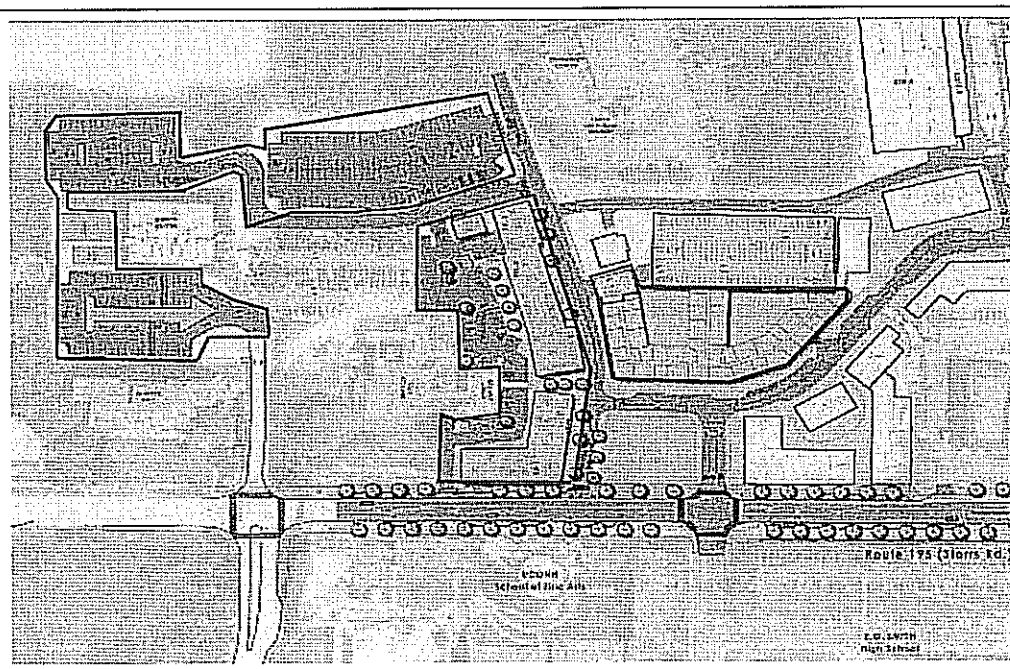
**Article 24 – Miscellaneous**

- Highlights various misc provisions such as applicable law (CT), severability, confidentiality of information and authorized representatives

# Storrs Center Project Development Agreement

Phases 1A and 1B - Town of Mansfield, Storrs Center Alliance, LLC and Education Realty Trust, Inc

# Phase 1A and Phase 1B



# Town Square

# Program for Phase 1A and 1B

- Mixed Use
- Phase 1A
  - 132 residential units
  - 29,400 square feet of commercial
- Phase 1B
  - 158 residential units
  - 44,000 square feet of commercial
- Parking for Residents, Visitors and Employees
  - Garage (est. 540 to 650 spaces)
  - Surface lot (est. 161 spaces )
  - On-street (est. 68 spaces on Storrs Road, Dog Lane)
- Town Square

# Public Infrastructure – Town Grant Projects

| | | |
|---|---|---|
| ☐ Storrs Road Improvements | **$5.25M** | **State & Fed** |
| ☐ Dog Lane Improvements | **$1.025M** | **State & Fed** |
| ☐ Parking Garage | **$10M** | **State** |
| ☐ Intermodal Center & Transit Pathways | **$6.615M** | **Fed** |
| **TOTAL** | **$22.89M** | |

# Key Objectives

- ☐ Adhere to community's vision for Storrs Center
  - Civic town center
  - Mixed use project
  - Intelligent land use and sustainability
  - Enhance tax base
- ☐ Manage Town's risk (protect the Town)
- ☐ Maximize use of federal and state grant funds

## Key Objectives (cont'd)

- Use grant funds and net revenue from project to finance capital components
- Design operational structure of garage and parking system to be ultimately self-supporting
- Negotiate agreement that is fair and equitable

## General Conditions

- Three-party agreement
  - Town of Mansfield
  - Storrs Center Alliance, LLC
  - Education Realty Trust, Inc
- Private and public improvements to be completed in accordance with Phase 1A/1B schedule and maintained in "first class manner"

## Public Infrastructure

- Finance through grant funding
- If aggregate estimated costs exceed grant funds Town has right to adjust project scope to reduce costs, but must consult with developer parties on any material changes. Town must reasonably consider developer parties' comments

## Public Infrastructure

- If cost of public improvements or developer party infrastructure exceeds budget, and parties cannot reduce scope to come within budget, SCA to fund deficiency in exchange for future tax abatement, subject to terms to be agreed upon by Town and SCA

## Intermodal/Parking Facility

- Town to construct 540-space facility using $10M grant proceeds. Town to prepare alternate design (650 spaces) if budget allows.
- Town to construct alternate design if budget allows; developer parties have right to fund any budget deficiency to allow construction of alternate design
- Parking facility may include intermodal hub

## Land Acquisition and Environmental

- Majority of land to be transferred to Town at no cost; minor land costs to be funded under grant budgets
- SCA has obligation to investigate and clean-up any environmental contamination on land to be conveyed to Town

## Governmental Approvals

- Town and developer parties to obtain necessary permits and approvals for improvements under their control
- Execution of development agreement not intended to supplant or influence role of Town's permitting authorities (e.g. PZC, IWA)

## Developer Party Improvements

- Developer parties have obligation to construct private improvements
  - Phase 1A minimum of 25,000 square feet of commercial/retail office and 120 residential units
  - Phase 1B minimum of 35,000 square feet of commercial/retail office and 140 residential units
- Restrictions against dormitory style construction
- EDR to fund certain infrastructure improvements (e.g. road between Dog Lane and Village Street)

## Parking

- Parking to consist of structure (garage), surface (Dog Lane lot) and on-street (interior streets, Storrs Road)
- EDR to lease 425 spaces (approx 350-375 in garage) at initial rate of $60/month per space
- "Public Garage Term" set at 98 years

## Parking (cont'd)

- SCA to assume management of parking for initial 7-yr period and assume liability for any operational deficit. Any net operating income (NOI) to be shared as follows:
  - 100% to reimburse SCA for any previous operating deficit
  - 50% to Town and 50% to SCA until reserve is fully funded
  - 100% to SCA as its sole compensation for operating garage

## Parking (cont'd)

- Town's maintenance obligations
  - Town to fund "Repair and Replacement Reserve" on annual basis
  - Years 1-50 – Town to maintain in good order and condition and to make all necessary capital improvements, using funds available in reserve fund as well as other Town funds
  - Years 51+ - Town to maintain garage in good order and condition but liability limited to funds available in reserve. If Town determines garage needs to be rebuilt Town may terminate lease and developer parties have right to acquire property and balance of reserve fund for $1 "as is with all faults."

## Parking (cont'd)

- Transfer of ownership
  - No transfer to private entity
  - Transfer to public entity allowed
- Parking rates – reasonable approval from other party

## Relocation and Conservation Areas

- Town and SCA continue agreement to share eligible relocation costs for existing tenants within the Phase 1A/1B area
  - Current estimate totals $700,000 or $350,000 each for Town and SCA
- Town agrees to accept conveyance of conservation areas, subject to conditions of open space acquisition policy

## Town Square

- SCA to have exclusive right to license square for portable retail kiosks for initial term of 10 yrs, for annual license fee equal to 20% of NOI. Town to approve number, location and use of kiosks.
- Developer parties have right to use square for events and marketing purposes, subject to Town ordinances, rules and regulations
- Provisions of license agreement between Town and SCA not to interfere with public's First Amendment Rights

# Special Conditions

- Conditions that developer parties must satisfy before Town initiates construction on garage:
  - Obtain building permits for Phase 1A
  - Construction of Phase 1A has commenced
  - Acquire title to all Phase 1 and other necessary property
  - Obtain binding construction loan commitments
  - UConn/SCA infrastructure agreements have not been amended in manner that would materially affect project without approval from the Town
  - No developer party has defaulted under the agreement
  - DECD has approved modification to garage grant agreement
  - Provide evidence of ability to complete improvements in accordance with project schedule

# Special Conditions (cont'd)

- Conditions that Town must satisfy before developer parties initiate construction of private improvements:
  - Town has issued all building permits for Phase 1A improvements
  - Town has confirmed that it is prepared to enter into construction contracts for public improvements and expects to complete improvements on schedule
  - Town has not defaulted under agreement

## Economic Incentives

- Town to provide tax abatement to EDR to reimburse EDR for public infrastructure costs related to Phases 1A and 1B; 7-yr schedule for each abatement period. Aggregate amount approx $4.5M ($3M at 8% discount rate).

## Economic Incentives (cont'd)

- Town to cap building & fire prevention services permit fees for future phases of project. Cap is designed for full cost recovery of direct inspection services and set at $12/$1000 of construction; Town has right to adjust fees every 3 years based upon CPI.

# Private and Public Investment

- Phase 1A/1B Project Cost - $87.6 million

- Sources of Funds
  - Leyland/EDR - $61.4 million
  - State and Federal Grants - $22.9 million
  - Tax Abatements and Fees - $ 3.3 million

- Private sector entities fund more than 70% of total project costs

- Federal and state grants fund over 25% of total project cost

- Town contribution to gap financing less than 4% of total project costs

# Fiscal Impact Analysis

- AECOM has estimated fiscal impact of Phases 1A/1B
- Analysis projects tax revenues accruing to the Town, municipal and school costs, and the impact on Town budget
- Tax revenues include:
  - Real Estate tax
  - Personal Property Tax and Motor Vehicle Tax
  - Deduct existing property taxes
- Municipal costs include:
  - Town departmental service costs
  - Public safety (police and fire) and public works expenses
  - School costs (net of State aid)

# Stabilized Year Net Fiscal Impact Table

- Based on assumptions identified in the fiscal impact study, Phases 1A and 1B of the project would have positive net fiscal impact.
- Detailed findings include the following:
  - Annual tax revenue of $1.05 million
  - Annual expenses of $660,000
  - Annual net fiscal impact (tax revenue minus cost) of $388,000

| | |
|---|---|
| **Annual Revenues** | |
| Real Estate | $983,207 |
| Personal Property | $37,483 |
| Motor Vehicle | $56,648 |
| Total Annual Revenues | $1,077,339 |
| Existing Annual Revenues | ($29,224) |
| Incremental Annual Revenues | $1,048,115 |
| **Annual Costs** | |
| Average Costs | |
| New Residents | $57,620 |
| New Workers | $3,027 |
| Marginal Costs | |
| Operating Costs | $418,460 |
| Capital Costs | $23,097 |
| Net School Costs | $157,507 |
| Total Annual Costs | $659,712 |
| **Annual Net Fiscal Impact** | $388,403 |

Source: AECOM

# Multi-Year Net Fiscal Impact Table

| Fiscal Year | | FY 12 | FY 13 | FY 14 | FY 15 | FY 16 | FY 17 | FY 18 | FY 19 | FY 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| Developer Benefits | | | | | | | | | | |
| Phase 1A | | | | | | | | | | |
| Residential Real Estate Tax Revenues | | $84,000 | $347,000 | $357,000 | $368,000 | $379,000 | $390,000 | $402,000 | $414,000 | $426,000 |
| *Proposed Abatement Schedule* | | *0%* | *93%* | *95%* | *90%* | *75%* | *70%* | *65%* | *60%* | *0%* |
| Proposed Abatement | | $0 | $321,000 | $339,000 | $331,000 | $284,000 | $273,000 | $261,000 | $248,000 | $0 |
| Phase 1B | | | | | | | | | | |
| Residential Real Estate Tax Revenues | | $0 | $98,000 | $406,000 | $418,000 | $431,000 | $443,000 | $457,000 | $470,000 | $485,000 |
| *Proposed Abatement Schedule* | | *0%* | *0%* | *93%* | *95%* | *90%* | *75%* | *70%* | *65%* | *60%* |
| Proposed Abatement | | $0 | $0 | $376,000 | $397,000 | $387,000 | $333,000 | $320,000 | $306,000 | $291,000 |
| PV of 1A Abatement (@ 8%) | $1,439,000 | | | Full Cash Value of 1A Abatement | | | | $2,057,000 | | |
| PV of 1B Abatement (@ 8%) | $1,561,000 | | | Full Cash Value of 1B Abatement | | | | $2,410,000 | | |
| Total Developer Benefits | $3,000,000 | | | Developer Benefits - Cash Value | | | | $4,467,000 | | |

# Net Town Revenues

- Over multi-year period Phases 1A and 1B will generate fiscal benefit to the Town, NET of abatement and Town costs
  - Net Tax Revenue to the Town of $1.3 million over a 10-year period
  - Net Tax Revenue to the Town of $4.2 million over a 15-year period
  - Net Tax Revenue to the Town of $7.5 million over a 20-year period

| Timeframe | 10-Year | 15-Year | 20-Year |
|---|---|---|---|
| Net Revenue Accruing to Town | $6,138,625 | $8,992,625 | $12,300,625 |
| Developer Benefits | ($4,467,000) | ($4,467,000) | ($4,467,000) |
| FY12 Public Infrastructure Improvements | ($371,933) | ($371,933) | ($371,933) |
| NPV of Storrs Center Town Benefits | $1,299,692 | $4,153,692 | $7,461,692 |

Source: AECOM

# Town Benefits

- Phases 1A/1B will support 165 retail jobs and 9 building, parking and grounds management jobs
- Project will support construction-related jobs during construction period
- Workers will generate additional sales and activity for existing shops and retailers
- Over multi-year period Phases 1A/1B will generate significant return on Town's initial gap financing contribution
  - $1 in Town contribution will return $1.27 in Net Town Revenues over a 10-year period
  - $1 in Town contribution will return $1.86 in Net Town Revenues over a 15-year period
  - $1 in Town contribution will return $2.54 in Net Town Revenues over a 20-year period
- Spill-over impacts of project will result in increased sales and activity for existing shops and restaurants

# Managing Risk

- There is risk involved with any development project of this scope
- Town has taken a number of steps to manage its risk:
  - Finance capital contributions via federal and state grant funds and net revenue derived from project
  - Town contribution provided through tax abatement as opposed to issuance of debt
  - Value engineering process to adjust project scope to reduce costs to meet budget
  - Developer parties assume liability for environmental conditions
  - Developer parties committed to build to certain minimum levels
  - Force majeure clause includes receipt of grant funding by Town

# Managing Risk (cont'd)

- SCA assumes any operational deficit for parking system through parking management agreement with SCA
- Long-term lease with EDR for 98 years
- Tiered capital maintenance obligations for garage
- Shared relocation costs
- Special conditions that developer parties must satisfy before Town initiates construction on garage
- Comprehensive insurance requirements, dispute resolution process and restrictions on transfer and assignment
- Parent company responsible for developer party liabilities

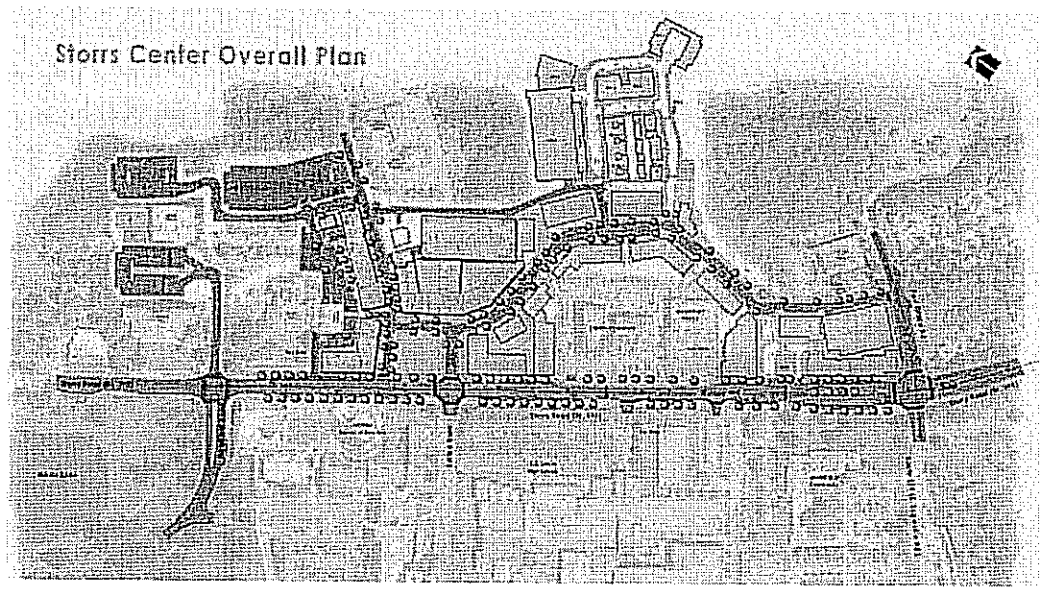
# Project Benefits

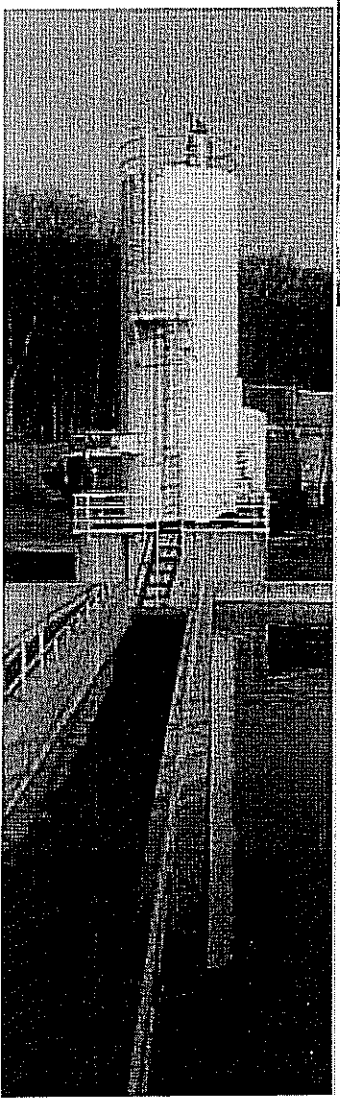
- Civic/public
  - Create Town Square and civic center
  - Create infrastructure to develop a great Main Street (Village Street)
  - New goods and services for residents
- Environmental
  - Improve storm water quality and management and wetland habitat
  - Preserve 25 acres of open space
  - Built in accordance with SDD and sustainability guidelines
  - Pedestrian-oriented/walkable

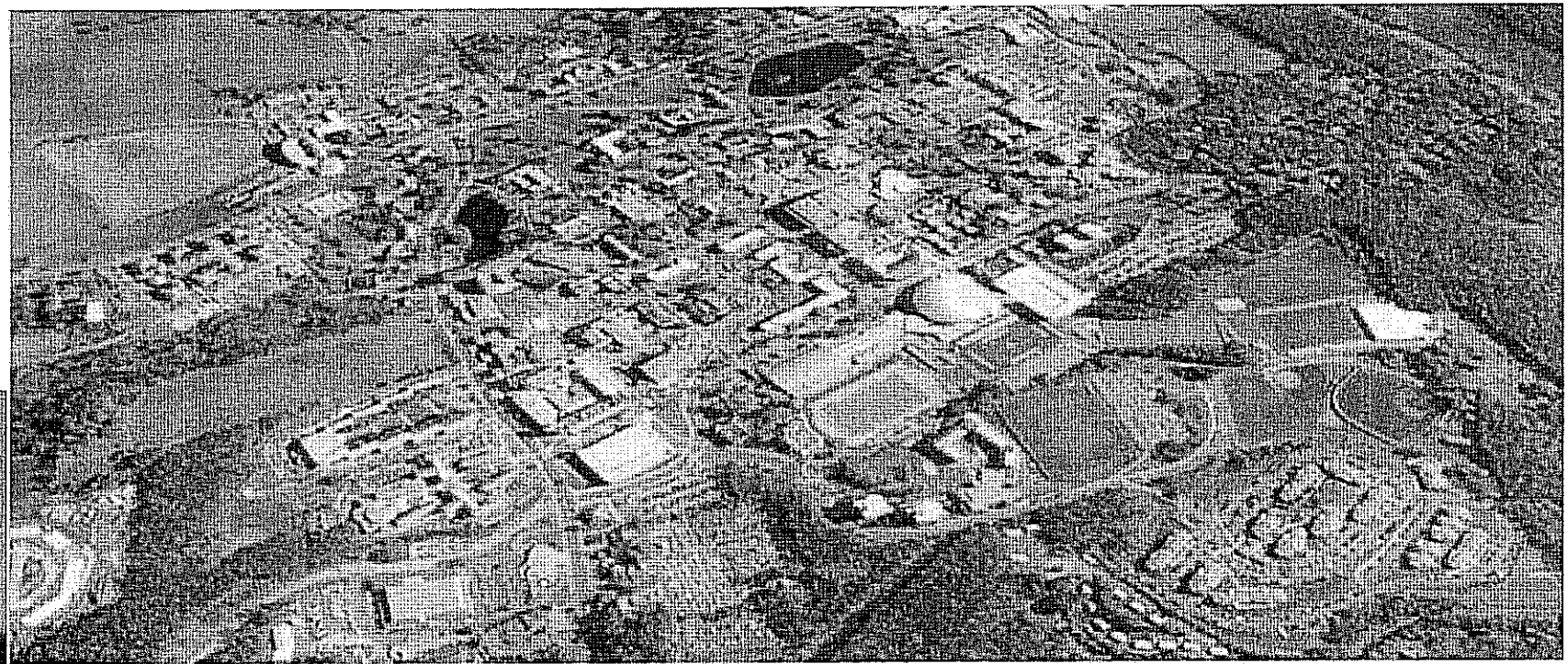
# Project Benefits (cont'd)

- Economic development
  - Grow Town's tax base – project will increase grand list by approx. 4%; SCA and EDR become largest taxpayer
  - 174 new jobs
  - New customers and business opportunities for existing businesses

# Overall Storrs Center Concept Plan







# UConn Water System

## *Supply, Demand and Reuse*

**December 9, 2010**

# Presentation Overview

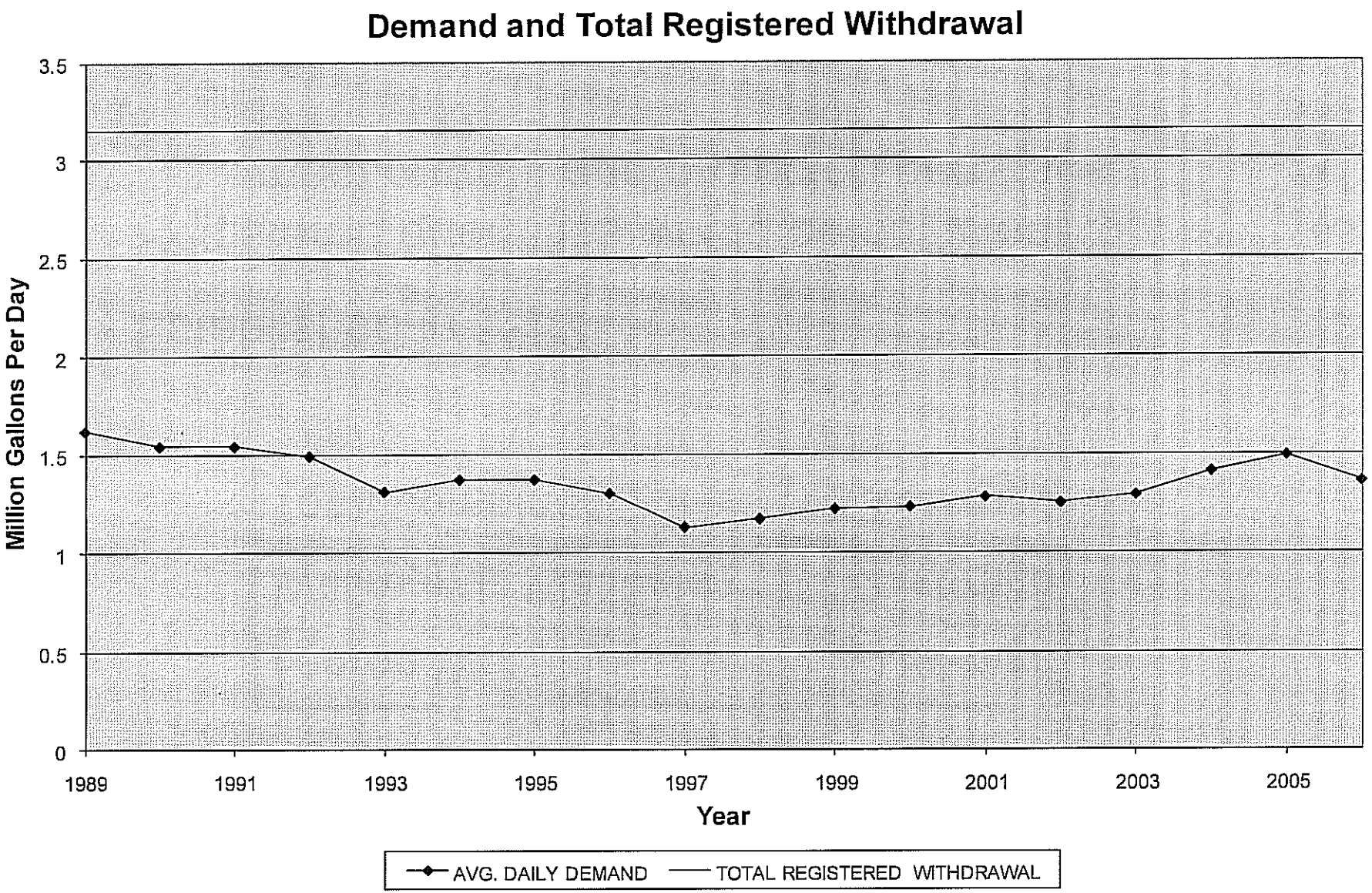
- ✓ UConn Water System Background
- ✓ Water Reuse Project
- ✓ Storrs area long term water supply options

# Water Supply Sources: Wellfield Registrations

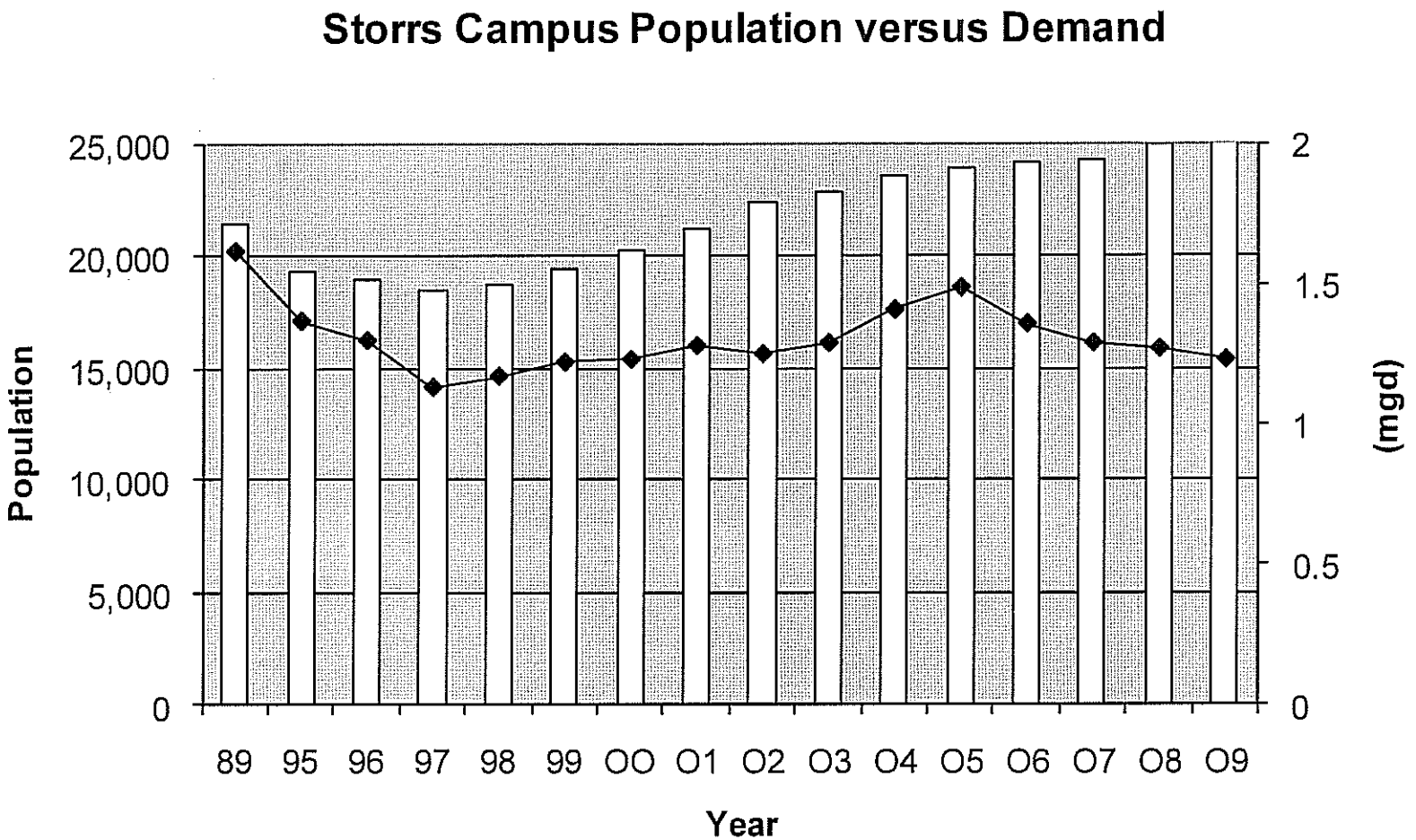
| | |
|---|---|
| Fenton Wellfield | 0.84 mgd |
| Willimantic Wellfield | 2.31 mgd |
| Total Combined | 3.15 mgd |

- Established in 1982
- Registered quantities would be sufficient to meet current and projected demands

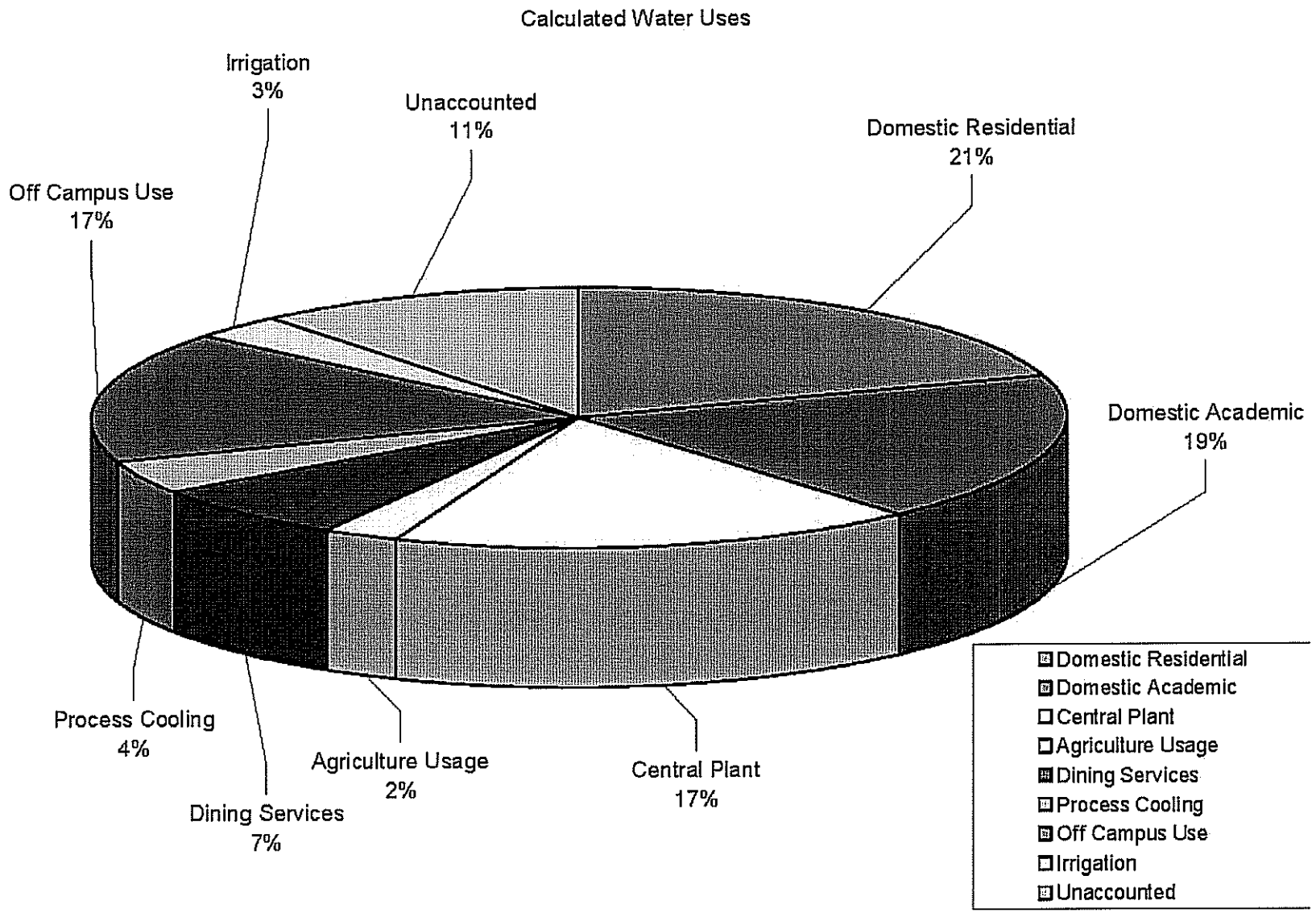
# Average Daily Supply and Demand



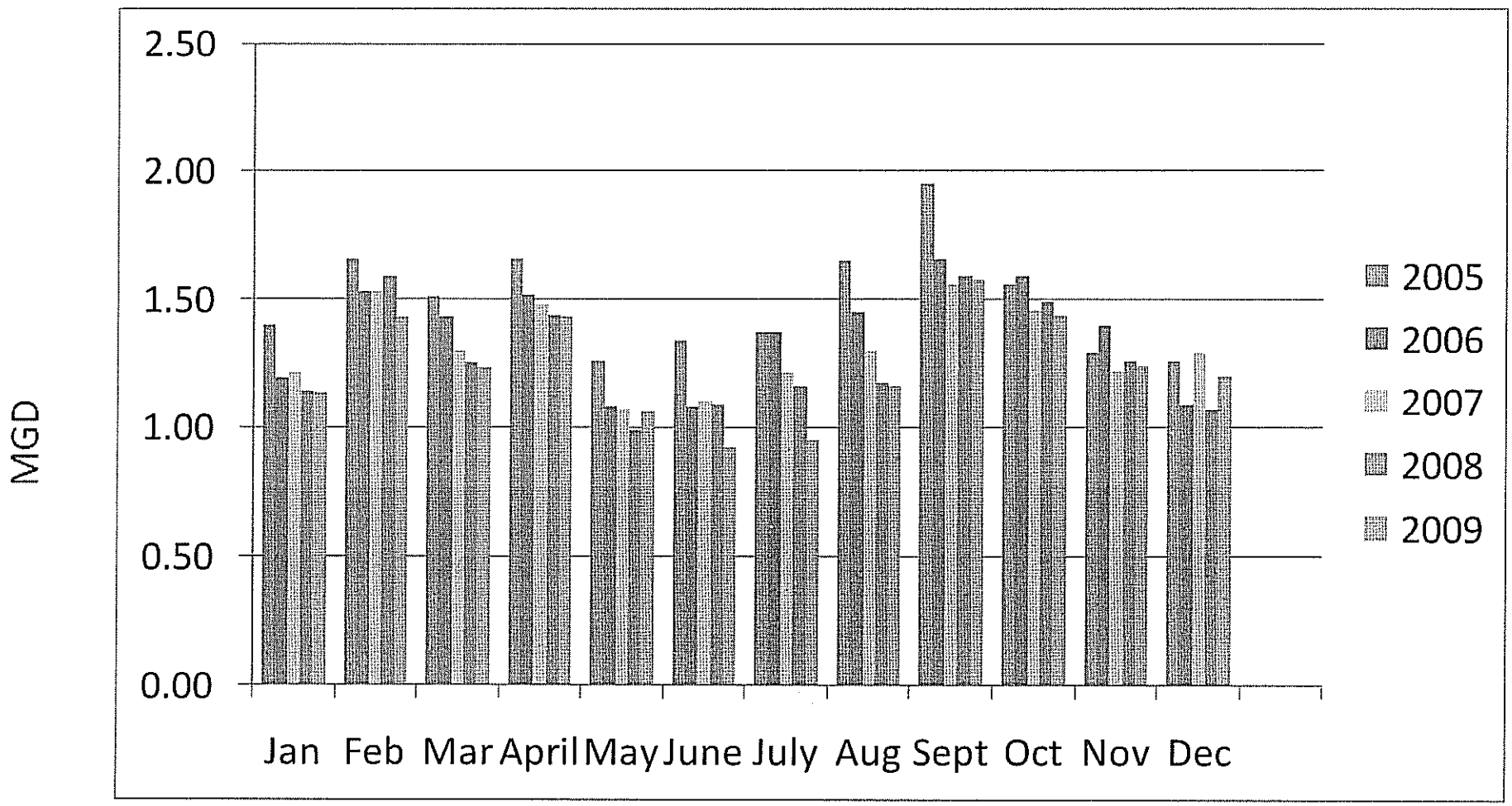
# Population/Average Daily Demand



# Water Uses – Annual Averages



# 2005-2009 Monthly Production

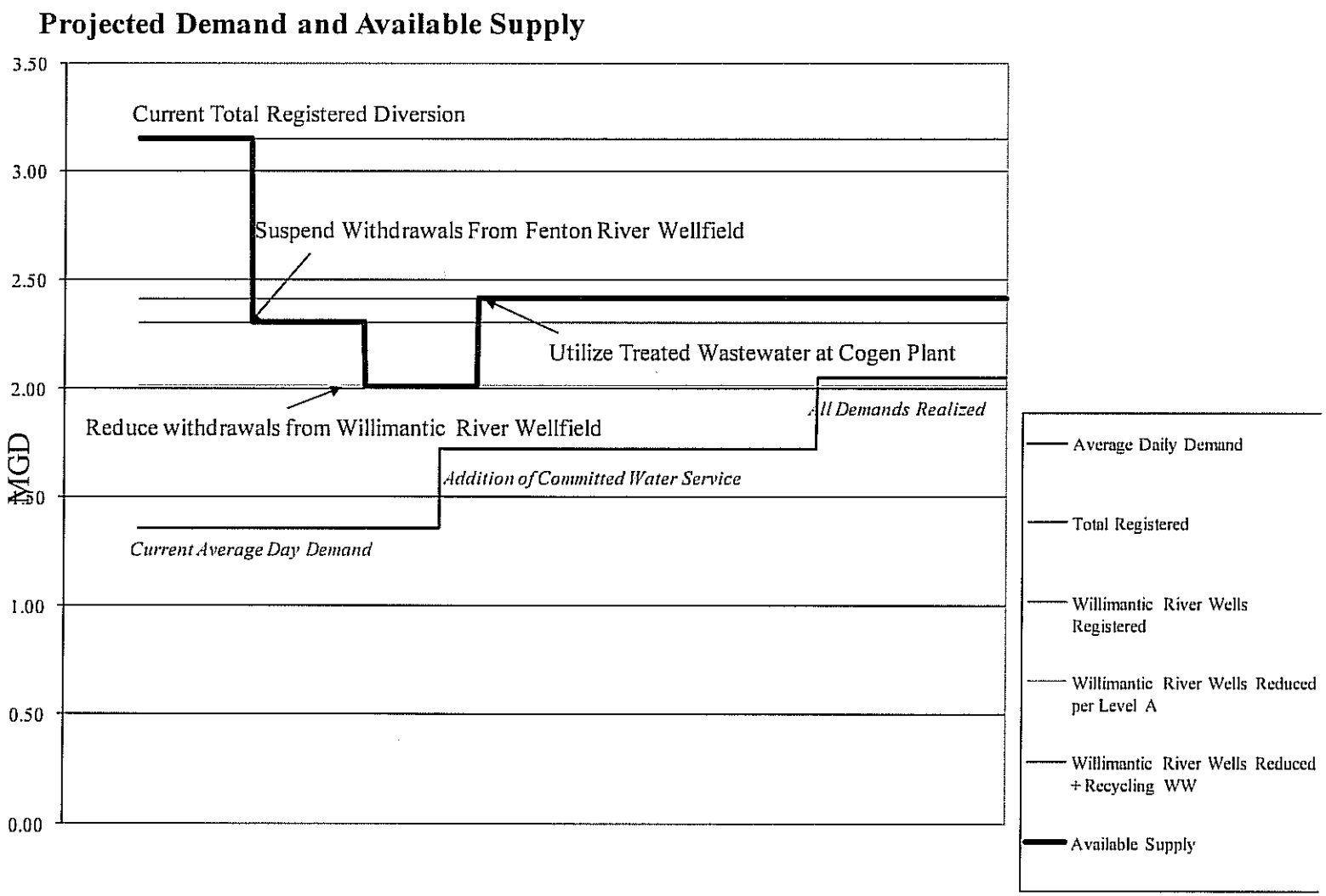


# Impact of Stream Flow Based Restrictions

| | |
|---|---|
| **Fenton based on streamflow triggers** | **NA** |
| **Willimantic (based on Level A study)** | **2.00 mgd** |
| **Total Combined** | **2.00 mgd** |

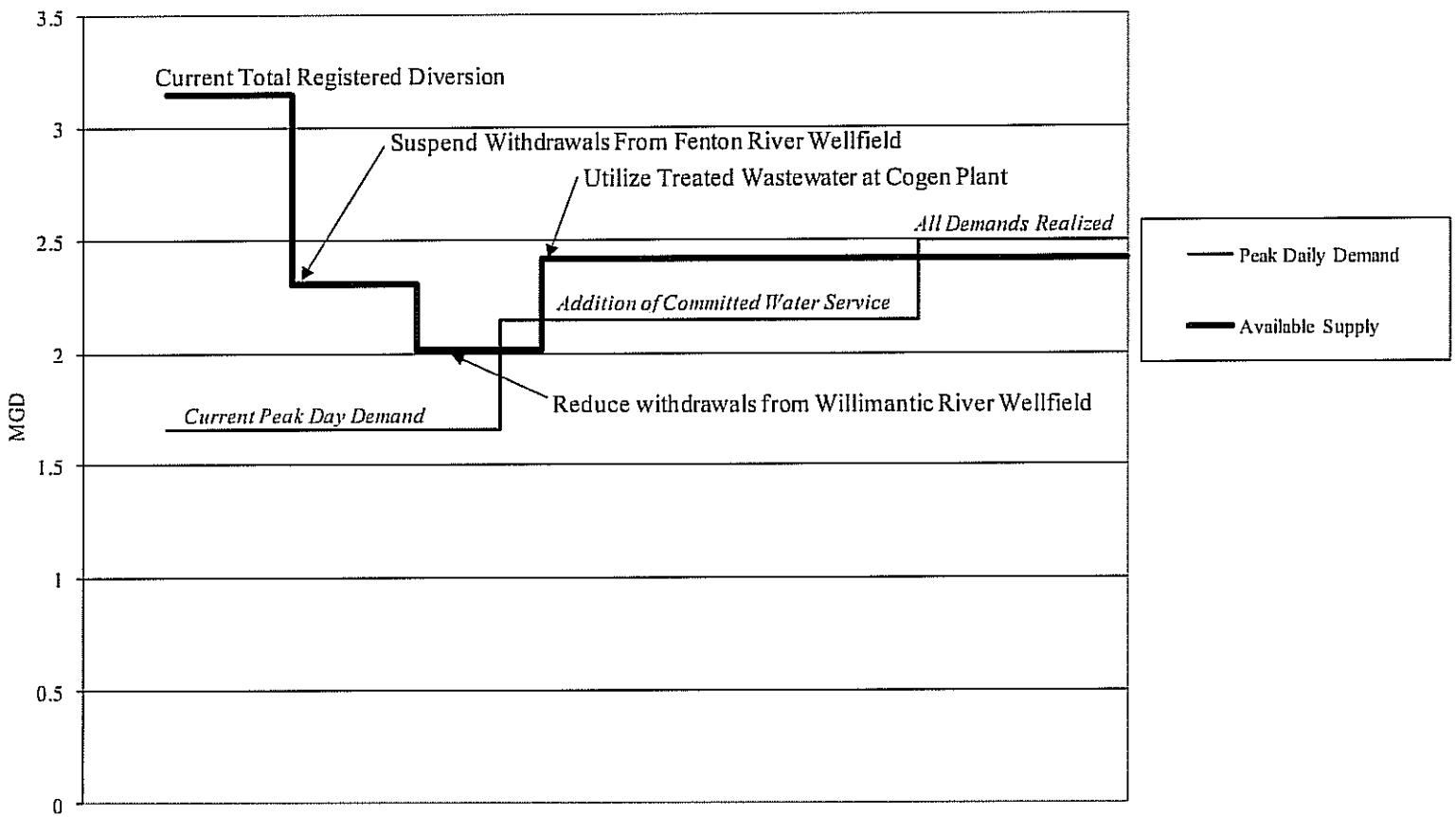
- New approach – can intermittently/temporarily curtail supply sources
- Affects how wellfields are operated and available supply

# Potential Impact of Curtailment of Average Day Withdrawals



# Potential Impact of Curtailment of Peak Withdrawals

**Projected Peak Demand and Available Supply**



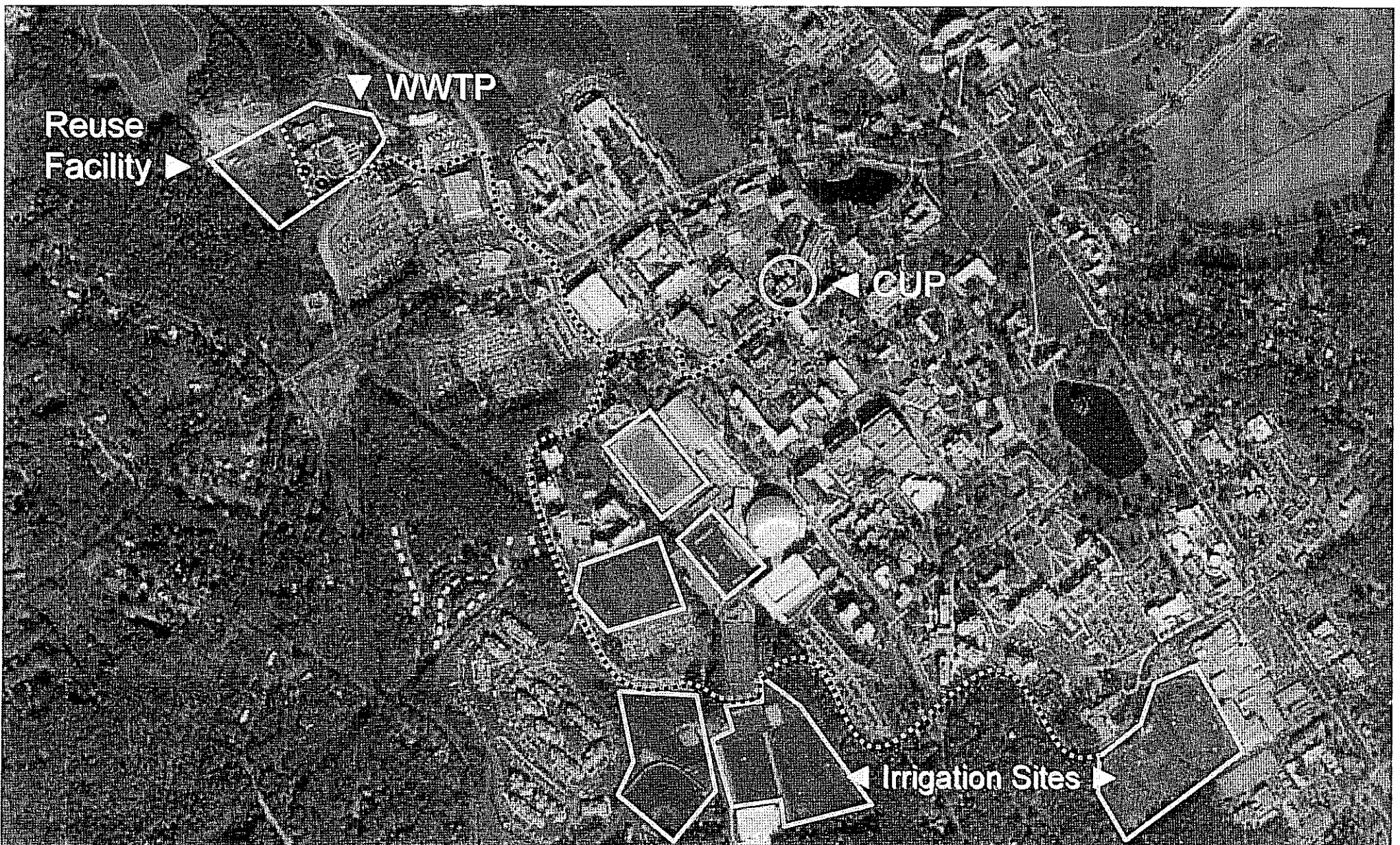
# Options for Meeting Future Demands

- Conservation
- Responsible Development
- Reuse
- New Sources of Supply

# Reuse Analysis

- Water Pollution Control Facility (WPCF)
- Central Utilities Plant (CUP)
- Irrigation
- Future use

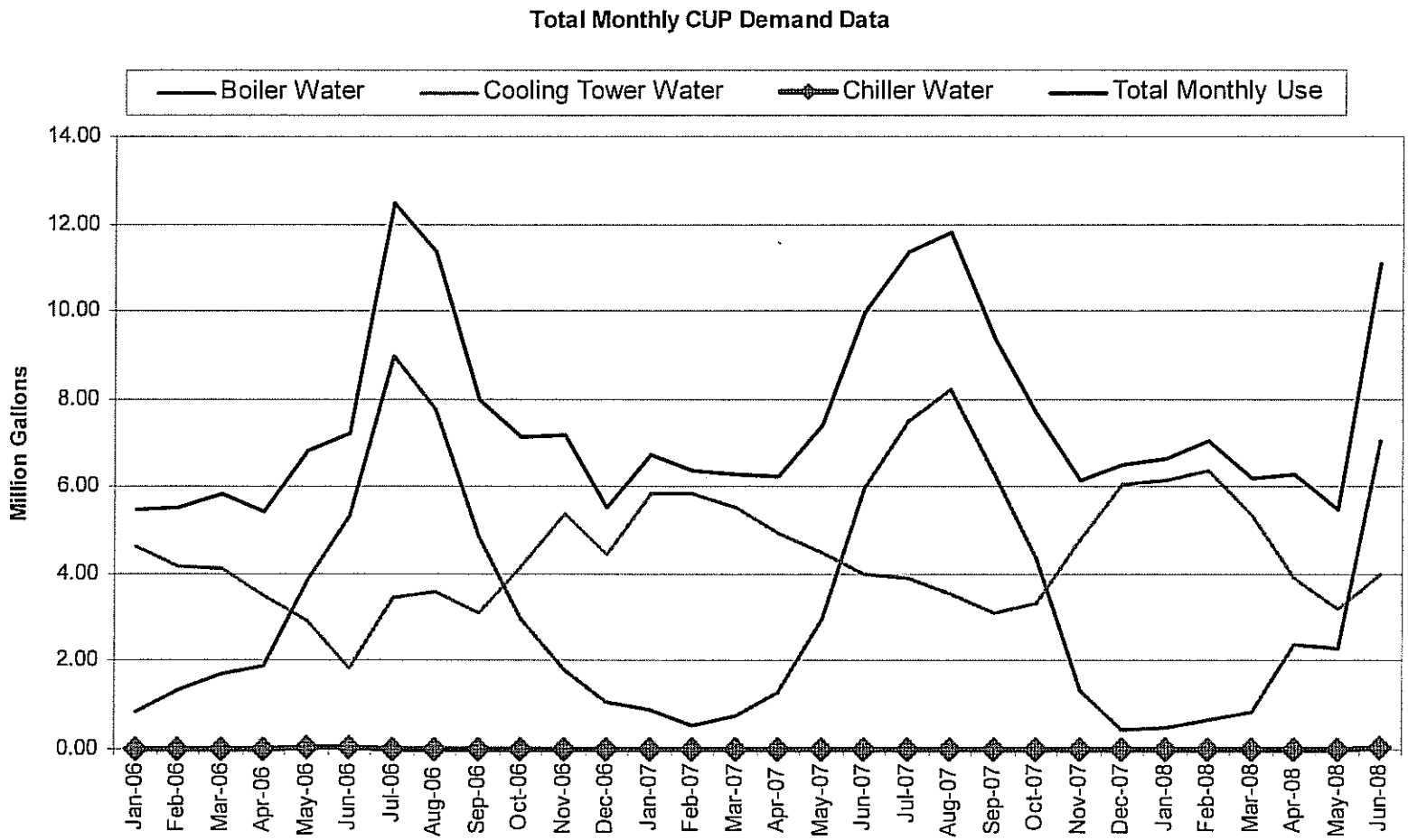
# Campus Reclaimed Water Uses



# Major Advance in Region

- Tertiary treatment
  - Microfiltration
  - Ultraviolet Disinfection
- Proven technology – regional examples
- Green solution – encouraged by CT DEP and CT DPH
- Potential future cost avoidance for current nitrogen and future phosphorous regulations
- Frees potable water for potable water demands

# CUP Water Demand



# Future Demand

- Work with Town of Mansfield and state regulatory authorities to identify practical, affordable and sustainable new sources of supply

- Options
  - Continued conservation emphasis
  - New wells
  - Interconnection

Baystate
Environmental
Consultants
Inc.
*A GZA Company*

Civil Engineers
Environmental Scientists
Planners

November 18, 2010

Ms. Ewa Wozniak
CT Department of Environmental Protection
Bureau of Materials Management and Compliance Assurance
Water Permitting and Enforcement Division
79 Elm Street
Hartford, CT 06106

RE: Mirror Lake Dredging
Discharge Toxicity Evaluation (DTE) Exemption Request
Wastewater Discharge Permit
Application No. 200903959

Dear Ms. Wozniak:

On behalf of The University of Connecticut, GZA GeoEnvironmental, Inc. (GZA) is hereby requesting an exemption from the requirement for a Discharge Toxicity Evaluation (DTE) for the Permit Application for Wastewater Discharges for the proposed Mirror Lake hydraulic dredging project on the University of Connecticut Storrs Campus.

An application for a permit for proposed wastewater discharges was submitted to CT DEP for the proposed project in December 2009. The University received a letter dated July 20, 2010, from CT DEP instructing the University to provide a revised and completed Attachment O. A revised and completed Attachment O was submitted to CT DEP on October 13, 2010. This letter supplements the submitted application and Attachment O by requesting the variance for the DTE information otherwise required in Part B, Table 6 of Attachment O.

**BACKGROUND**

Mirror Lake water and soft sediment samples were collected to run bench scale processing tests using geotextile fabric dewatering tubes. The tests were performed in the labs of Mineral Processing Services, LLC (MPS) of South Portland, Maine in July and August 2010, to simulate the larger scale dredging, dewatering, and discharge process proposed for the Mirror Lake Dredging project. Characterization of the dredged material was made for consolidation and dewatering properties and for the determination of a suitable polymer flocculant. Laboratory testing of the chemical and toxicological characteristics of the simulated dewatering discharge (filtrate) was performed by Connecticut-certified laboratories to assess the discharge from the dredging and dewatering process. Results of laboratory testing are attached to this letter. Data related to methodology of processing, sampling, sample handling, and specific parameters is included in the formal permit application.

The dredging of Mirror Lake is anticipated to take approximately four to six months. As such, the dewatering discharge is anticipated to occur only during this timeframe and, therefore, will be a temporary discharge only.

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East Longmeadow, MA 01028
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120 Mountain Avenue
Bloomfield, CT 06002
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*GZA Offices in Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, New York, New Jersey, Pennsylvania, Michigan, Ohio, Vermont, Wisconsin*

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**DISCHARGE TOXICITY EVALUATION**

A Discharge Toxicity Evaluation (DTE) for process water discharges is required under Section 22a-430-4(c)(21) of the Regulations of Connecticut State Agencies (RCSA), at the discretion of the Commissioner of DEP. An exemption from the DTE may be made at the written request of the Applicant if accompanied by an estimate of the toxicity of the discharge, an expected dilution and mixing concentration of the discharge within the receiving waters, and a discussion of any anticipated impact of the discharge on the receiving waters.

The University of Connecticut is hereby requesting an exemption from the requirement for a DTE based upon the information submitted and because the proposed discharge will be a limited activity resulting in a temporary discharge for four to six months. The following information is submitted in support of the DTE Exemption Request.

Estimate of Discharge Toxicity and Review of Potential Impact Based on Conformance with Standards

Acute aquatic toxicity tests were run on the two separate samples of the filtrate generated during the bench scale process testing. The aquatic toxicity tests for the first filtrate sample (MLS-1) resulted in LC50 values for both species to be >100% concentration of the sample. The No Observable Adverse Effect Level (NOAEL) values were 50% concentration of the sample for the *Daphnia pulex* and 100% concentration of the sample for the *Pimephales promelas.* Elevated mortality was only observed in the 100% concentration for the Daphnia pulex, and very minimal mortality was observed in the *Pimephales promelas*. For the second sample (MLS-2), the LC50 concentration was 92.5% for the *Daphnia pulex* and was >100% for the *Pimephales promelas*. The NOAEL concentrations of the sample for the two species were 25% and 6.25%, respectively. For the *Daphnia*, mortality was elevated only in the 100% concentration. For the *Pimephales*, no significant mortality was observed in any of the tested concentrations. Only the 6.25% concentration showed elevated mortality. This inconsistent result was reviewed with the laboratory staff, who indicated that this result is a probable anomaly since there were little to no reported mortalities in the higher concentrations of the sample. Laboratory reports of the toxicity testing results are enclosed. Overall, the aquatic toxicity test results indicate little to no toxic effect of the filtrate, even in its undiluted form.

MPS indicated in their report, dated October 12, 2010, that the aquatic toxicity of the polymer flocculant selected, DrewFloc® 2421 Flocculant by Ashland, has in past projects met the "EPA Methods for Measuring Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms", when used in conjunction with "Smartfeed™ condition management", a proprietary dosing control system. An updated Materials Safety Data Sheet (MSDS, attached) for the flocculant including aquatic toxicity data was recently provided following the release of MPS's report. According the updated MSDS, the 96 hour LC50 data for *Pimephales promelas* indicates possible toxicity to fish at a concentration of 6.81 mg/l and the 48 hour EC50 concentration for the water flea (*Daphnia magna*) is 0.95 mg/l.

Based on their bench scale process testing, MPS reports an anticipated flocculant dosage rate of 433.3 mg/l in the dredge discharge to the geotextile fabric dewatering tubes. Additional technical data from Ashland (see attached memorandum entitled "Filtrate Polymer Residual Expectations") submit that, under proper operating conditions, the flocculent is 99.5% consumed by particulate reaction to flocc formation. This suggests that the dosage rate of the flocculant is reduced to a concentration 2.16 mg/l, less than the manufacturer's reported LC50 concentration. The Smartfeed™ condition management

system is designed to provide the operator with the means for real time evaluation and control of polymer dosage. Furthermore, any residual flocculent in the discharge will be available for floc formation during the ongoing dredging operation.

The filtrate was tested for four metals: Arsenic, barium, copper, lead, and zinc due to their documented presence in the sediments to levels exceeding the Residential Direct Exposure Criteria of the CT DEP Remediation Standard Regulations. Detectable levels of copper and lead in the filtrate were reported by the lab and these results were compared to numerical values for Aquatic Life Criteria published in the CT Water Quality Standards. The filtrate analysis results met these standards for acute toxicity; however, the total copper and total lead concentrations detected in the filtrate samples appear to exceed the CT standards for chronic toxicity to freshwater organisms. The numerical standards, however, apply to the dissolved fraction only, yet the testing methodology utilized tests for the total. Also, chronic toxicity criteria apply to a long term exposure anticipated from an indefinite discharge, which will not be the case with the temporary discharge proposed.

Anticipated Concentration of Discharge in Downstream Receiving Waters

Mirror Lake, an impoundment of Roberts Brook, is the receiving water of the discharge. Flows to and discharges from Mirror Lake within Roberts Brook vary widely in response to hydrologic conditions. Roberts Brook is ungaged and historic data is not readily available to estimate the 7Q10 low flow conditions at Mirror Lake. However, Mirror Lake and its predominantly impervious sub watershed are at the extreme headwaters of Roberts Brook, therefore, a seven day period of no rainfall will result in a 7Q10 flow rate of zero. In this sense, Mirror Lake acts as a detention basin for a mostly urbanized watershed. The concentration of the discharge within Mirror Lake, the receiving waters, under this condition could be anticipated to be 100% after a few days of dredging. With zero flow through of Roberts Brook, the dredge/dewatering discharge would be completely contained within the lake.

Based on bathymetric survey information collected by GZA in July 2009, the existing and post-dredged water volumes of Mirror Lake are approximately 4.2 million gallons and 7.7 million gallons, respectively. The average dredge/dewatering discharge flow rate is estimated to be 1.08 million gallons per day (MGD). One day of discharge represents approximately 25% of the lake volume at the beginning of dredging and approximately 14% by the completion of dredging. Under low flow conditions (assumed zero), this translates into a lake volume turnover rate by the dredge/discharge process of approximately 4 to 7 days, the point at which the lake volume constitutes 100% discharge from the dewatering process. At this point the dredge slurry is comprised of sediment and previously-treated discharge water collected within the lake.

Under less than extreme hydrologic conditions, rainfall and some base flow will provide dilution within Mirror Lake and a discharge over the spillway into Roberts Brook. It is expected that summer rain storms will generate dilution flows during low flow periods with peak flows that could result in a complete turnover of the lake volume within a 24 hour period.

In conclusion, the acute aquatic toxicity testing of Mirror Lake bench scale test (discharge water) resulted in little to no toxicity in the two samples tested. Two metals, copper and lead, are known to exist in the sediments and, therefore, were among four metals tested for in the filtrate samples. The copper and lead concentrations detected in the filtrate are below the Aquatic Life Criteria for Acute Toxicity published in the CT Water Quality Standards. The flocculent determined in the bench scale testing performed by MPS

has a utilization rate of 99.5% when applied under proper operating conditions. The toxic concentration reported by the flocculent manufacturer exceeds the concentration of any residual flocculent that may be released in the discharge. Finally, dilution and mixing of the discharge will occur within Mirror Lake. Under extreme low flow conditions, no discharge to Roberts Brook will occur and the discharge will be contained within the lake until hydrologic conditions change and inflow waters can provide dilution and mixing within Mirror Lake.

We appreciate your review of this request for an exemption to the Discharge Toxicity Evaluation for Mirror Lake and hope that the information provided is sufficient for the Commissioner to make the determination on this request. Please feel free to contact our office should you have questions or require additional information.

Sincerely,
GZA GeoEnvironmental, Inc.

Nathaniel Y. Arai, P.E.
Project Manager

Thomas E. Jenkins, P.E.
Consultant Reviewer

Harry R. Jones, P.E.
Principal In Charge

Attachments:

- Alpha Analytical Laboratory Report
- GZA Laboratory Report
- MPS Bench Scale Testing Report
- Flocculent Manufacturer's Data

cc: Jason Colte – University of Connecticut
Gregory Padick – Director of Planning, Town of Mansfield
James Hooper – Superintendent, Windham Waterworks

# December 1, 2010 DRAFT

## Proposed Revisions to the Subdivision Regulations

(New provisions are underlined or otherwise indicated)
(Deletions are bracketed or otherwise indicated)
*(Explanatory Notes are provided to assist with an understanding of the proposed revisions. These notes are not part of the proposed zoning revisions.)*

1) In Section 3, Definitions, incorporate the following revisions:

a. **3.9 Natural and Manmade Features**

Significant trees, [specimens or groupings;] standing singly or in groves; agricultural lands including open fields and pastures; water, including ponds, lakes, brooks, streams, rivers, and cascades; ledges, and large rock outcroppings or formations, large hills or ridges, or expanses of valley floors; visible historic sites or features, such as stone walls, individual buildings or groupings of buildings, cemeteries, cellar holes, foundations, or similar features.

b. **3.10 Plan, [Preliminary] Conceptual Layout**

[The preliminary drawing(s) and any supporting data indicating the proposed manner and layout of the subdivision (see Section 5.0 for requirements)]

A plan prepared after analyzing off-site influences and site and neighborhood features and indicating potential streets, lots, open space areas and other site alterations. Conceptual plans, which are required for subdivisions with potential streets and/or four (4) or more lots, are reviewed by the planning staff pursuant to Section 5.

c. **3.18 [Trees (specimen and groups of trees)**

Specimen: a fully developed tree, standing singly or in a group, exceeding 9" (nine inches) d.b.h. (diameter breast height) on a proposed lot or 6" (six inches) d.b.h. within an existing or proposed street right-of-way. Groups of trees, ranging from 6" to 12" (six to twelve inches) d.b.h., of hardwoods or evergreens, especially as they stand along roadsides or boundaries or properties or lots, so as to serve as privacy screens or buffers, or to enhance a public road or way. Groups or masses of trees may be indicated on a plan as a mass, and each tree need not be delineated.]

**Trees, Significant**

A healthy, well formed, individual tree nine (9) inches or greater d.b.h. (diameter breast height) on a proposed lot or within an existing or proposed street right-of-way, and/or a grove of trees of any size, especially as they stand along streets or boundaries of existing or proposed lots, that add scenic character or serve as privacy screens or buffers.

d. **3.20 View**

[A sight or prospect of some landscape or extended scene; an extent or area covered by the eye from one vantage point, whether on or off a subdivision site.]

Scenery that exceeds one-hundred and eighty (180) degrees in width as observed from a vantage point.

e. **3.21 Vista**
[A view seen through a long or restricted passage, such as between rows or groups of trees or buildings.]

Scenery that is less than one-hundred and eighty (180) degrees in width as observed from a vantage point and is framed by trees, landforms, buildings or other vertical features.

f. **3.23 Yield Plan**
A map or maps containing a lot and site improvement layout and additional information, as required by these regulations (see Section 6.10.a.6), that demonstrates: compliance with the zoning Schedule of Dimensional Requirements provisions for standard lot size, lot frontage and building setbacks; compliance with all other zoning requirements, including minimum lot area requirements for new lots; and compliance with all subdivision requirements, including the Design Objectives of Section 5.1, the [Design Criteria of Section 7] lot size and configuration provisions of Section 7.4 and the Open Space requirements of Section 13.

A yield plan must be submitted whenever a subdivider seeks a reduction or waiver of minimum lot frontage (see Section 7.6) or in the R-90 and RAR-90 zones, a lot size of less than 90,000 square feet.

Explanatory Note: *The revised definitions are associated with new design process provisions in Section 5 and revised provisions in Sections 6.5 and 7.8 regarding the identification and preservation of significant trees, views and vistas.*

2) In Section 4, General Provisions, incorporate the following revisions and renumber Sections 4.7 through 4.9 to 4.5 through 4.7.

a. **4.2 Zoning Regulations**
No subdivision plan shall be approved unless it conforms to the Zoning Regulations of the Town, as adopted, as may be amended hereafter (copy on file in the Office of the Commission). [Pursuant to Article III, Section A of the Zoning Regulations, Mansfield has adopted a Temporary and Limited Moratorium on receiving and acting upon certain subdivision and resubdivision applications. See Article III, Section A of Mansfield's Zoning Regulations for specific details.]

b. Relocate, without revision, Section 4.5 (Subdivisions in Flood Hazard Areas) to a new Section 7.1.

c. Relocate, without revisions, Section 4.6 (Solar Access-Energy Efficient Design) to a new Section 7.2.

d. Relocate, without revision, Section 6.17 (Submission to Regional Planning Commission) and Section 6.18 (Notification to Adjoining Towns) to new Sections 4.8 and 4.9.

e. Relocate, with the following revisions, existing Section 6.19 to a new Section 4.10

4.10 **[6.19] Windham Water Works/Connecticut Department of Public Health Notification**

When an applicant files with the Planning and Zoning Commission an application concerning a subdivision that is within an aquifer protection area delineated pursuant to Section 22a-354c of the State Statutes or which is within the watershed of the Willimantic Water Works or other water company as defined in Section 25-32a of the General Statutes, the applicant shall provide written notice of the application to the water company and the Commissioner of Public Health in a format prescribed by the Commissioner (provided such water company or said Commissioner has filed a map showing the boundaries of the watershed on the Mansfield Land Records and with the Mansfield Planning and Zoning Commission or the aquifer protection area has been delineated in accordance with Section 22a-354c, as the case may be). Such notice shall be made by Certified Mail, Return Receipt Requested, and shall be mailed within seven days [of] after the date of the application. The Willimantic Water Works or other such water company and the Commissioner of Health may, through a representative, appear and be heard at any hearing on any such application.

f. Relocate, with the following revisions, existing Section 6.20 to a new Section 4.11

4.11 **[6.20] Notification of Abutting Property Owners**

The applicant shall be responsible for notifying all property owners abutting the site of a proposed subdivision, including property owners across the street from a subject subdivision (as measured at right angles to straight street lines and radial to curved street lines). Said notification, which shall be sent by Certified Mail, [Return Receipt Requested,] within seven (7) days of the Commission's receipt of the application, shall include mapping that depicts the proposed subdivision. The notice also shall reference the fact that the complete application is available for review in the Mansfield Planning Office. Notification forms (available in the Mansfield Planning Office) shall be utilized for notifying abutting property owners.

g. Add a new section 4.12 to read as follows:

**Referrals to Staff/Mansfield Boards and Committees**

All subdivision applications and related mapping shall be referred to the Director of Planning, the Town Engineer or designee, the Fire Marshal, Eastern Highlands Health District, the Conservation Commission, the Open Space Preservation Committee and any other agency or organization the Commission deems appropriate including but not limited to: the Design Review Panel, the Agriculture Committee, the Parks Advisory Committee, the Recreation Advisory Committee and the Town Council.

Explanatory Note: *The revisions to Section 4 eliminate an expired moratorium reference and incorporate statutory requirements regarding notification to the CT.*

*Department of Public Health and to abutting property owners. A number of existing sections involving referrals have been relocated to this section and a new subsection has been added to address referrals to staff and Town Boards and Committees.*

3) Delete Existing Section 5 in its entirety and add new Sections 5* as follows:
*(Section 5.1 modifies existing provisions currently contained in Section 7.1 and proposed revisions have been indicated. Section 5.2 is all new but to enhance clarity new provisions have not been underlined)

**Section 5.0 Subdivision Design Objectives/Design Process**

**5.1 Design Objectives**

Subdivisions shall be designed in a manner that protects the public's health and safety, promotes goals, policies and [objectives] recommendations contained in Mansfield's Plan of Conservation and Development, addresses the provisions of Section 1 of these Regulations (Purpose and Authority) and complies with all specific requirements contained or referenced in these regulations. To address these objectives, [accordingly] primary considerations in designing streets, walkways/bikeways and other public improvements, lot layouts, proposed locations for houses, driveways, sanitary systems and other site work and identifying appropriate open space preservation areas shall be:

a. The protection and enhancement of vehicular [bicycle] and pedestrian safety through the appropriate siting of streets, driveways, walkways, bikeways and trails;

b. The protection and enhancement of existing and potential public water supply wells and ground water and surface water quality through appropriate design and installation of sanitary systems, roadways, drainage facilities, house sites and other site improvements;

c. The protection and enhancement of natural and manmade features, including wetlands, watercourses, aquifer areas, agricultural lands, hilltops or ridges, historic sites and features, expanses of valley floors,[and features along existing roadways] interior forests, significant trees and scenic views and vistas on and adjacent to the subdivision site. Wherever appropriate, site features shall be protected through a clustering of streets and house sites and the identification and preservation of significant open space areas including agricultural lands, interior forests and other land without physical limitations.

d. The [use]utilization of a site's natural terrain, avoiding unnecessary re-grading, filling and removal activities.

e. The promotion of energy efficient patterns of development and land use, energy conservation and the use of solar and renewable forms of energy through the appropriate siting of streets, driveways and house sites and, whenever appropriate, bikeway and walkway/trail connections to neighboring streets and neighborhoods; existing and planned commercial areas; schools parks, and other public facilities and town designated walkway or bicycle routes.

## 5.2 Design Process

All prospective subdividers are encouraged to meet with the Director of Planning or other Planning Office Staff to review zoning and subdivision approval criteria and application submission requirements.

To help achieve the design objectives of Section 5.1, to expedite application reviews, to help reduce application submission costs and to help ensure compliance with all applicable provisions of Mansfield's Zoning and Subdivision Regulations, Mansfield has established a comprehensive pre-application design process. This design process, which is recommended for all subdivisions, includes mandatory pre-application submissions for all subdivisions with new streets or four (4) or more lots. The process has the following steps:

- Step 1 Preparation of an Off-Site and Neighborhood Influences Inventory Plan and preparation of a Site Analysis Plan (see Section 5.2.a)
- Step 2 Preparation of a Conceptual Yield Plan and a Conceptual Layout Plan (see Section 5.2.b)
- Step 3 Testing and Preparation of Final Subdivision Plans (See Section 5.2.c and Section 6)

It is important to note that any pre-application comments and/or recommendations provided to a prospective subdivider by Mansfield's Director of Planning, other staff member or Mansfield Commission or Committee member, shall not be binding on the applicant, the Planning and Zoning Commission or any other authority, agency or official having jurisdiction to review and act upon the subject subdivision.

### a. Off-Site and Neighborhood Influences Inventory Plan and Site Analysis Plan

#### 1. Off Site and Neighborhood Influences Inventory Plan

Regional, town-wide and neighborhood characteristics and influences shall be inventoried and considered with respect to the subject subdivision site and the Design Objectives of Section 5.1. State and regional land use plans, Mansfield's Plan of Conservation and Development, local knowledge and other sources of information should be considered in conducting this inventory of off-site influences.

While all prospective applicants are encouraged to submit and review with the Planning Staff an inventory of off-site and neighborhood influences, whenever a subdivision proposal includes new streets or four (4) or more lots, this inventory is mandatory and shall be submitted by a Connecticut Licensed Landscape Architect in association with the Site Analysis Plan requirements of Section 5.2.b. Where required, this inventory shall be presented in the form of a plan showing the location of the project site, area factors such as roads and transportation networks, noteworthy topographical and natural resource features, proximate commercial, recreational, educational and cultural land uses and any other external site features that could influence development on the project site. This plan may be displayed as a cover sheet for the set of final subdivision plans.

## 2. Site Analysis Plan

Natural and man-made features on or adjacent to a potential subdivision site shall be inventoried and considered in association with the design objectives of Section 5.1 and other provisions of these regulations. While all prospective applicants are encouraged to submit and review with Planning Staff a Site Analysis Plan (as described below), whenever a subdivision proposal includes new streets or four (4) or more lots, the submittal of a Site Analysis Plan is mandatory. Where required, a Connecticut Licensed Landscape Architect shall prepare and submit to the Director of Planning five (5) copies of a Site Analysis Plan containing the information listed below as applicable to the subject site. This plan shall be submitted in association with an Off-Site and Neighborhood Influences Inventory Plan as per Section 5.2.a.1.

The submitted Off-Site and Neighborhood Influences Inventory Plan and the Site Analysis Plan shall be reviewed by Mansfield staff members and shall be referred to the Conservation Commission and the Open Space Preservation Committee. As deemed appropriate by the Director of Planning, the above referenced plans also may be referred to other advisory committees for review and comment. Additionally, the Planning and Zoning Commission shall be informed in writing and provided with an opportunity to receive the submitted information for review and comment. The Director of Planning shall within forty-five (45) days of receipt provide review comments on the submitted plans to both the applicant and the Planning and Zoning Commission and any reviewer who provided comments to the Director. No final subdivision plan involving new streets or four (4) or more lots shall be considered complete and approvable by the Commission unless the Off-Site and Neighborhood Influences Inventory Plan and the Site Analysis Plan requirements have been met.

The following information shall be included, as applicable to the subject site, on all required Site Analysis Plans:

1. North arrow, date and scale. All plans shall be drawn at a scale of one (1) inch equals forty (40) feet (1" = 40') or less. The Director of Planning shall have the right to permit different scales for larger parcels provided the scale used shall also be used for the final subdivision plan. Use of the same scale will facilitate a transfer of information.
2. Name of subdivider and subdivision and the name and seal of the Landscape Architect who prepared the plan.
3. Boundaries of tract to be subdivided.
4. Existing contours at two (2) foot intervals. All slopes over 20 percent and watershed divides should be indicated.
5. Existing streets, easements, fences, walkways, bikeways, trails, structures both onsite and immediately adjacent to the site.
6. Wetlands and watercourses including intermittent streams both onsite and immediately adjacent to the site.
7. One Hundred (100) year flood plains, including base flood information on any portion of the land being subdivided which is within flood hazard areas as shown on the Zoning Map and in greater detail in the flood insurance study dated July 1980, and the most current Federal Emergency Management "Floodway" and Flood Insurance Rate Maps.
8. Aquifer areas and public drinking water wells on or within 500 feet of a site.

9. Soil type classifications as per the current U.S.D.A. Natural Resource Conservation Service Soil Survey for Tolland County, CT.
10. On-site and adjacent historic features including: all structures, wells and other utility features, walls and fences regardless of their condition, existing or former walks, paths, drives, trails, etc., curbs and pavement, man-made elements inserted into the ground such as hitching posts, garden or enclosed areas, significant vegetation, remains of old foundations, rip-rapping, arbors, trellises, etc., and any other historic features observed.
11. On-site and adjacent agricultural land with existing uses identified.
12. Areas with potential State and Federally-listed endangered, threatened or special concern species as per the current State and Federal Listed Species and Natural Communities Map published by the Connecticut Geological and Natural History Survey of the Connecticut Department of Environmental Protection; and significant natural flora and fauna communities as per Mansfield's Plan of Conservation and Development mapping.
13. Other natural and man-made features, including rock ledges and rock outcropping, significant trees, tree or shrub groves or masses of groundcover and obvious wildlife habitats.
14. Desirable scenic and/or historic views and vistas into or out of the site, desirable internal vistas and views and any undesirable views and vistas both off and on-site.
15. On-site and adjacent open space and recreational land with existing uses identified.
16. Off-site nuisances to be screened.
17. Negative site conditions such as dangerous and dilapidated buildings, dead and falling trees, diseased plants, infestation of invasive species, areas of stripped top soil, deposits or junk and refuse.
18. Objectionable noises or odors and their sources both on and off site.
19. Particular micro-climatic conditions that may affect development.
20. Directions of prevailing winter winds and summer breezes.
21. Horizontal angles of the sun (azimuth) on December 21 and June 21.
22. Primary directions of off-site traffic flow and relative volumes; points of connection of site with sidewalks, bikeways and trails, if any.
23. Logical points of ingress and egress to the site; sight lines of possible driveway to road; locations of all trees over 9 inches in diameter (d.b.h.) within sight lines.
24. Tentative notations of possible preservation and conservation areas (areas where development should be discouraged).
25. Tentative identification of areas that are better suited for development.

An example of a site analysis plan is contained in Appendix A of these regulations.

In situations where the Director of Planning becomes aware of a planned subdivision but the mandatory submittal of an Off-Site and Neighborhood Influences Inventory Plan and a Site Analysis Plan are not required, the Director is encouraged (subject to privacy considerations or other factors) to notify other staff members, the Conservation Commission, the Open Space Preservation Committee and, as appropriate, other advisory committees that a subdivision is being considered for the subject property. This notification provision is

designed to facilitate the communication of useful information to a potential applicant at an early stage of the subdivision design process.

In situations where an Off-Site and Neighborhood Influences Inventory Plan and Site Analysis Plan have not been submitted but the Director of Planning has notified staff and advisory Committees of a potential subdivision application, the Planning and Zoning Commission shall be informed in writing and provided an opportunity to comment. Any pre-application review comments from staff members, commission or committee members shall be incorporated into a report from the Director of Planning, which shall be submitted to the applicant, the Planning and Zoning Commission and any reviewer who provided comments to the Director. Any comments from the Commission shall not be binding on the applicant, the Commission or any other authority, agency or official having jurisdiction to review and act upon the subject subdivision.

**b. <u>Conceptual Yield Plan and Conceptual Layout Plan</u>**

Following the analysis and review of off-site and neighborhood influences and site features, the next step in designing a Mansfield Subdivision shall be the preparation of a Conceptual Yield Plan and a Conceptual Layout Plan. These plans shall take into account all comments received in association with the initial step as described in Section 5.2.a.

All applicants are encouraged to submit to the Planning Office a Conceptual Yield Plan and Conceptual Layout Plan for review prior to the submittal of final plans. However, whenever a subdivision proposal includes new streets or four (4) or more lots, a Connecticut Licensed Landscape Architect shall prepare and submit to the Director of Planning five (5) copies of a Conceptual Yield Plan and a Conceptual Layout Plan. Several concept plans may be submitted concurrently. The submitted plans shall be reviewed by Mansfield staff members and, shall be referred to the Conservation Commission, the Open Space Preservation Committee and the Design Review Panel. As deemed appropriate by the Director of Planning, the plans also may be referred to other advisory committees for review and comment. Additionally, the Planning and Zoning Commission shall be informed in writing and provided with an opportunity to receive the submitted plans for review and comment. The Director of Planning shall within forty-five (45) days of receipt provide review comments on the submitted plans to both the applicant and the Planning and Zoning Commission and any reviewer who provided comments to the Director. No final subdivision plan involving new streets or four (4) or more lots shall be considered complete and approvable by the Planning and Zoning Commission unless these conceptual plan requirements have been met. All review comments on conceptual plans shall not be considered as a commitment to approve final plans which are subject to independent review and approval pursuant to Section 6 and compliance with all applicable approval criteria contained in these regulations.

The Conceptual Yield Plan, which shall be drawn to a scale best suited to the site and allows appropriate review, shall identify potential streets (where applicable), potential lots and potential open space areas that could be developed with standard frontages and lot sizes pursuant to all applicable zoning and subdivision approval criteria. Mansfield's Subdivision Regulations require a yield plan to determine the maximum number of lots that could be developed on a subject site (see Section 6.10.a.6 for yield plan provisions).

The Conceptual Layout Plan, which shall be drawn to a scale best suited to the site and allows appropriate review, shall identify potential streets (where applicable), potential lots and potential open space areas that could be developed pursuant to all applicable zoning and subdivision approval criteria, including Mansfield's "Cluster Development" provisions. Section 7.4 of the Subdivision Regulations authorizes the Commission to require new subdivisions to be clustered with reduced lot sizes and larger areas of preserved open space. Section 7.6 includes provisions to reduce or waive lot frontage and setback requirements. A submitted Conceptual Layout Plan should reflect an applicant's intended final plan submission subject to soil testing and obtaining more specific site information.

**c. Testing/Preparation of Final Subdivision Plans**

Following the receipt of review comments on all submitted conceptual plans, applicants shall conduct all required testing pursuant to State Health Code requirements and permits issued by Eastern Highlands Health District. Following on-site testing and further analysis, applicants can elect to resubmit conceptual plans pursuant to Section 5.2.b. or prepare final plans pursuant to Section 6. The final plan shall take into account all information obtained through Mansfield's design process.

Final Subdivision plans shall depict proposed streets, lot lines, building and development area envelopes, house locations, well and septic system locations, open space areas, natural and manmade resources and other details required by Section 6 and other provisions of these Regulations. The final subdivision plan shall address the minimum lot size provisions of the Zoning Regulations, and the number of proposed lots shall be no greater than the number depicted on a finalized yield plan prepared pursuant to Section 6.10.a.6.

Explanatory Note: *The revisions to Section 5 include the relocation and expansion of subdivision design objectives and the establishment of a new pre-application process designed to promote compliance with the design objectives and all applicable subdivision submission and approval standards. For subdivisions involving four (4) or more lots or new streets, the proposed regulations require applicants to submit to the Director of Planning, and as deemed appropriate, other staff members and advisory committees, an inventory of regional, town-wide and neighborhood characteristics and influences and a site analysis plan before preceding to the preparation of conceptual yield and layout plans which also must be submitted for review and comments. Any subdivision application submitted to the Planning and Zoning Commission pursuant to Section 6, that involves four (4) or more lots or new streets, would be incomplete if the new pre-application requirements have not been met. The new pre-application process is expected to expedite Planning and Zoning Application reviews and help reduce application revisions and associated processing costs.*

4) In Section 6, Final Plans, incorporate the following revisions:

a. Revise Section 6.1 to read as follows:
**Plan Required**
[Except as provided for in Section 4.9,] In order for land to be subdivided, all procedures and requirements of this Section (6.0) and other applicable sections of these regulations, including the subdivision design process of Section 5 [design criteria of Section 7,] must be complied with. Only final plans approved by the Commission may be filed in the office of the Town Clerk.

b. Revise section 6.2 to read as follows:

**Complete Application**

The subdivision application shall be considered complete by the Commission when it determines the subdivider has complied with the design process provisions of Section 5 and all submission provisions of Section 6 [all the plan requirements]. If an application involves activities within regulated areas as defined by the Mansfield Inland Wetland Agency (IWA), the application shall not be received unless a license application for said activities has been received by the IWA and is currently under IWA review; or unless a license for said activities has been approved by the IWA; or unless the proposed activities have been ruled by the IWA to be exempt from licensing requirements. The date of the meeting at which the Commission determines the application is complete shall be designated the official date of submission.

c. Revise section 6.3 to read as follows:

**Final Plan Requirements**

a. The final plans shall consist of the subdivision map, construction and public improvement plan (if needed), pursuant to Section 6.7 and supportive documentation (Section 6.10 and 6.11) either required herein or as may be required by the Commission.
b. All required plans shall be prepared by and shall bear the name, signature and seal of a land surveyor and professional engineer licensed by the State of Connecticut.
c. Final plans shall include the name, signature and seal of a landscape architect licensed by the State of Connecticut whenever a subdivision proposal includes new streets or four or more lots, or the Commission determines that a landscape architect is needed to address application requirements and approval criteria including potential impacts on natural and manmade features and scenic views and vistas.
d. Final plans shall include the name and signature of a certified soil scientist whenever wetlands or watercourses exist within one hundred fifty feet of proposed building envelopes or the Commission determines that a soil scientist is needed to address application requirements and approval criteria.
e. All <u>full sized</u> plans shall be drawn at a scale of one (1) inch equals forty (40) feet (1"=40') or less. The Commission may permit different scales for large parcels.
f. All plans shall be submitted on sheets at least 24 inches wide and 36 inches long (24" x 36"). The subdivider shall submit at least 6 copies of all <u>full size</u> maps. [, two of which shall be on Mylar or similar reproducible medium.] The Commission may require additional copies. <u>In addition, the subdivider shall submit fifteen (15) copies of the final plans reduced, wherever possible, to fit paper eleven (11) inches wide and seventeen (17) inches long. The reduced sized maps shall be at a measurable scale, which shall be noted on the reduced size map.</u> [Upon approval by the Commission, final plans also shall be submitted in digital form AutoCAD R-14 or compatible form acceptable to the Town (unless specifically waived by the Commission for smaller subdivisions where a digital form is not available).]

d. **Revise Section 6.5.j.3 to read as follows;**

3. Open fields and meadows, woodlands, tree lines, significant trees. The subdivision map shall identify all <u>significant</u> trees <u>(see definition) that are within a proposed development area envelope or an existing or proposed street right of way. In addition, all</u> [over six (6) inches d.b.h. (diameter breast height) within an existing or proposed street right-of-way or nine (9) inches d.b.h. on a proposed lot that are to be removed in association with road, drainage, driveway, house, septic or underground utility construction. All] trees over fifteen (15) inches d.b.h. (diameter breast height) situated on the subdivision site shall be identified,

either individually or as part of a [group of trees] grove. [Specimen] Significant trees [and groups or masses of trees (see definition)] that are to be preserved shall be specifically [shown and] labeled on final plans.

e. **Revise Section 6.5 to read as follows:**

n. Proposed street layout (where applicable) with pavement type and typical street cross-section, right-of-way widths, street names, location of existing and proposed street signs and street lights, with design details and street trees, with standard plant specifications;[signs and sidewalks, if any;]

f. Add a new Section 6.5.o to read as follows and re-letter existing Section o through t to p though v.

o. Sidewalks, bikeways, trails and/or other improvements designed to encourage and enhance safe bicycle and pedestrian use (see Section 9). Where required, cross-sections and related construction details shall be provided.

g. In Section 6.10, Required Documentation, incorporate the following revisions: 6.10.a.5, change Section 4.6 to Section 7.2; 6.10.a.6, delete "design" in line 6; 6.10.b.1, delete "Sewer Authority" in line 1

h. In sections 6.13 a and b, replace "Town Planner" with "Director of Planning" (3 locations)

i. **Revise Section 6.14 to read as follows:**
**Submittal of Approved Plans/ Endorsement**
Upon approval, the subdivider shall submit, in accordance with the schedule contained in Section 6.15, two (2) sets of reproducible subdivision plans acceptable to the Town Clerk based on the provisions of Section 7-31 of the State Statutes; [and] three (3) sets of full sized paper prints of the approved plans[shall be submitted to] and three (3) sets of reduced size maps as per the submission provisions of Section 6.3.f In addition, the subdivider shall submit the final plans in digital form AutoCAD R-14 or a compatible form acceptable to the Town. Alternatively, Town staff may accept other forms of digital data (property lines, wetland boundaries and other data contained on a final subdivision plan) provided the data can be readily incorporated into the Town's current digital mapping system. This digital data is needed to appropriately update Town records.

The Chairman of the Commission who, after determining that [they] the submittals comply with the Commission's action and that all other regulatory requirements have been met, shall sign the plans. When the Chairman is absent, or otherwise unable to act, the Vice-Chairman or Secretary of the Commission shall sign said maps. No plan shall be recorded with the Town Clerk until approval has been endorsed thereon and recording of the plan without such endorsement shall make said plan void. A plan revised without a proper endorsement shall also be void. The endorsement of approval shall state the date on which the subdivision approval period expires (see Section 6.16). [The applicant also shall file with the Town the final plans in digital form (see Section 6.3.g).]

j. Renumber Section 6.21 to 6.17 (existing Sections 6.17 through 6.20 are being relocated to Section 4).

Explanatory Note: *The revisions to Section 6, clarify and update final subdivision plan application submission and post approval requirements. The revisions reference the new pre-application provisions of Section 5, clarify significant tree inventory provisions and provide alternatives for submitting final plans digitally.*

5) In Section 7 to be relabeled "Additional Subdivision Criteria" incorporate the following revisions.

a. Delete existing Sections 7.1 and 7.2 and replace them with existing provisions contained in Sections 4.5 and 4.6.

b. **7.7 Stone Walls/Historic Features**

[Subdivisions shall be designed to preserve, where] To the extent possible (subject to any safety issues) [after consideration of other regulatory provisions,] all existing stone walls, remains of old foundations and any other historic features on the subject site shall, regardless of condition, be preserved and maintained. Furthermore, wherever possible, existing stonewalls shall be used to delineate property lines. The Commission may require stone walls and other historic features to be included within conservation easements to help ensure long term protection.

All existing stone walls that need to be removed due to street, driveway, house, septic system or other site construction shall be[rebuilt elsewhere on the property, or the stones shall be] used to enhance adjacent segments of walls or other existing walls on the property, particularly along new property lines. [Information] Specific plans regarding any stone wall removal and proposed stone wall rebuilding or improvements shall be included on the subdivision plans and the Commission shall have the right to require stone wall work to be the responsibility of the subdivider.

c. **7.8 Trees**

a. Unless specifically authorized by the Commission, no roadside tree over [six (6)] nine (9) inches d.b.h. (diameter breast height) shall be removed unless the removal is necessary to provide suitable sightlines, to establish suitable driveway or roadside drainage, or to provide suitable underground utility service (see underground utility provisions of section 11.1);

b. Subdivisions shall be designed to preserve, where possible after consideration of other regulatory provisions, [specimen] significant trees [and groups of trees] that contribute to Mansfield's scenery and/or help enhance significant man-made and natural features (see definitions of scenery, significant trees and natural and man-made features).

d. **7.10 Common Driveways**

a. The use of a common driveway may be authorized or required by the Commission where:

1. Wetlands, steep slopes or other physical constraints would require extensive grading, filling or tree removal for individual driveways;

2. Common driveways will enhance vehicular and/or pedestrian safety;
3. Common driveways will protect and preserve natural and manmade features [and], scenic views and vistas, interior forests and/or existing or potential conservation areas identified in the Plan of Conservation and Development(see map 21) or [where];
4. Common driveways will promote cluster development and other design objectives of these regulations (see Section 5.1). [Any approved common driveway shall serve no more than three (3) residential lots.]

Where common driveways are approved, a driveway easement that establishes maintenance and liability responsibilities shall be depicted on the plans, shall be incorporated onto the deeds of the subject lots and shall be filed on the Land Records.

b. Except where specifically authorized by the Commission pursuant to this section, any approved common driveway shall serve no more than three (3) residential lots.

By a three-quarters (3/4) vote of the entire Commission (seven (7) votes), the maximum number of residential lots served by a common driveway may be increased to four (4) or five (5) lots, but only if the Commission finds that doing so would significantly:

1. Reduce environmental impacts; or
2. Enhance vehicular and/or pedestrian safety; or
3. Protect and preserve natural and man-made features, scenic views and vistas, interior forests and/or other existing or potential conservation areas identified in the Plan of Conservation and Development (see map 21); or
4. Promote cluster development and other design objectives of these regulations (see Section 5.1).

c. [b.] All sections of a common driveway that include areas that have a slope of ten (10) percent or greater shall be surfaced with an appropriate thickness of bituminous concrete or an equivalent surface approved by the Commission;

d. [c.] Common driveways serving two (2) or three (3) lots shall have a minimum travel width of twelve (12) feet and minimum load-bearing shoulder widths of two (2) feet. Common driveways serving four (4) or five (5) lots shall have a minimum travel width of twenty (20) feet. All curves along a common driveway shall have a minimum inside radius of twenty-five (25) feet.

e. All common driveways shall be designed and constructed to safely accommodate fire department apparatus, pursuant to Mansfield's Fire Lane Ordinance (Chapter 125 of the Mansfield Code). Subdivision plans shall include a common driveway cross-section that demonstrates compliance with this requirement.

f. At all intersections of a common driveway and a street, common driveways shall have a minimum travel width of twenty (20) feet for a minimum length of forty (40) feet. This width is necessary to safely provide for entering and exiting traffic.

g. [d.] Common driveways shall meet the slope, sightlines and drainage standards of Section 7.9 and the driveway length standards of Section 7.11.

h. Common driveway improvements shall include the following street number signage:

1. Signage listing the approved street numbers of all dwellings served by a common driveway shall be erected at the intersection of a common driveway and a street. Signage details, including the location and nature of support posts, shall be included on subdivision plans. The subject sign shall not exceed two (2) square feet in size.

2. Signage listing the approved street number of an individual dwelling shall be erected at the intersection of a common driveway and individual driveway. Signage details, including the location and nature of support posts, shall be included on subdivision plans.

i. Common driveways shall not be used for parking, storage or other uses that could act as an access impediment.

j. [e.] Common driveways and all associated improvements, including signage, shall be considered the responsibility of a subdivider and shall be completed or bonded pursuant to Mansfield's regulatory requirements, prior to the filing of a subdivision on the Land Records.

e. **7.11 Driveway Length Standards**

To help ensure safe and appropriate access to a house site for all vehicles, including emergency vehicles, the following provisions shall apply for all driveways exceeding a length of three hundred (300) feet:

a. The driveway shall have a minimum travel width of twelve (12) feet and minimum load-bearing shoulder widths of two (2) feet, except for certain common driveway improvements that require a twenty (20) foot minimum travel width. All driveway curves shall have a minimum inside radius of twenty-five (25) feet;
b. Pull-off areas adjacent to the driveway shall be provided at average intervals of every three hundred (300) feet or as deemed necessary by the Commission due to slope, sightline or other site characteristics. Pull-offs shall have a minimum load-bearing length of forty (40) feet and minimum width of ten (10) feet;
c. An adequately-sized, located and surfaced turnaround area that will accommodate a fire truck shall be provided. Unless the following distance requirements are waived by the Commission due to specific site characteristics, the turnaround area shall be no closer than seventy-five (75) feet from a house site and no further than two hundred (200) feet from a house site and the turnaround shall be at least thirty (30) feet in length with two (2) foot wide, load-bearing shoulders.

Explanatory Note: *The revisions to Sections 7.8 and 7.9 expand provisions designed to protect stone walls and any other historic feature on a subdivision site and clarify provisions designed to protect significant trees. The new provisions reference the potential use of conservation easements to protect historic features.*

*The revisions to Sections 7.10 and 7.11would allow, subject to specific criteria and a ¾ vote waiver, common driveways to serve four (4) or five (5) residential lots. This change is proposed to provide more flexibility in situations where environmental impacts will be significantly reduced, where traffic safety will be significantly enhanced and/or where increasing the number of homes served by a common driveway would promote subdivision design objectives as documented in the regulations. The revisions also incorporate additional width provisions, street number signage requirements and other requirements designed to enhance safety and help ensure safe emergency vehicle access.*

6) In Section 8.7, incorporate the following revisions:

a. **Existing Street Improvements**

Whenever any subdivision is proposed for land fronting on or accessible only by a street or streets that do not meet the Town's current "Engineering Standards and Specifications" requirements as administered by the Mansfield Department of Public Works, and the Commission determines that approval of the subdivision plan would be contrary to the public safety unless such street or streets were altered or improved along the frontage of the proposed subdivision or beyond the limits of the proposed subdivision, the Commission [may disapprove] shall consider denial of such plan or [may condition] shall consider conditioning its approval upon completion of the improvements or alteration of such street or streets by and at the expense of the subdivider, or [may disapprove] shall consider the denial such plan until the Town Council has authorized expenditures for such improvements.

In [making the above determination] considering alternative actions, the Commission shall take into account the width and degree of improvement of the street and its ability to handle the increased volumes of traffic which will be generated by the proposed subdivision, the ability of school buses and emergency vehicles to travel the street safely, the drainage conditions of the street, pedestrian and bicycle safety and, [generally] the ability of any vehicle or person to use the street safely. Before taking action, the Commission shall consult with the Town Attorney or other qualified legal consultant with respect to statutory authority and case law pertaining to this issue.

Explanatory Note: *The revisions to Section 8.7 are designed to provide more flexibility in considering potential off-site improvements and to help ensure compliance with applicable statutory authority, as refined through Connecticut Case Law.*

7) In Section 9, incorporate the following revisions:

**9.0 Sidewalks/Bikeways/Trails**

[Sidewalks may be required by the Commission] Sidewalks, bikeways, trails and/or other improvements designed to encourage and enhance safe pedestrian and bicycle use shall be required, unless specifically waived by a three-quarter (3/4) vote of the entire Commission (7 votes), in all subdivisions within or proximate to Plan of Conservation and Development designated "Planned Development Areas" [commercial areas; in locations] proximate to schools, playgrounds, parks and other public facilities; [and in areas along] or proximate to existing or planned [Town-designated] walkway [or], bicycle or trail [priority] routes. In evaluating any waiver request, [determining the need for sidewalks,]the Commission shall consider the size and [review] the location of the proposed subdivision [and] its relationship to [commercial areas,] existing or planned development, school sites, playground areas and other public areas and the location and nature of existing or planned sidewalk, bikeway or trail improvements.

Explanatory Notes: *The revisions to Section 9 are designed to clarify and expand existing provisions regarding requirements for sidewalks, bikeways, trails and other improvements designed to encourage pedestrian and bicycle use. The proposed provisions require pedestrian oriented improvements, unless waived by a ¾ vote of the Planning and Zoning Commission,*

*when a subdivision is within or proximate to planned development areas, schools, parks or other public facilities or existing or planned walkways, bikeways or trails.*

8) Revise Section 13.8, incorporate the following revisions:

**13.8 Site Improvements**

a. In addition to the access requirements of Section 13.7, the Commission shall have the right to require a subdivider to include, as part of subdivider responsible improvements, park and/or hiking trail improvements, including, as appropriate, clearing, grading, drainage, base preparation, surfacing and re-stabilization of all disturbed areas. [make site improvements such as clearing, grading, drainage, seeding and parking areas where active park, playground or hiking trail uses are deemed appropriate.] [The] All referral reports shall be considered in determining whether site improvements are appropriate. The degree of site improvement required shall be directly associated with the number of proposed lots within the subject subdivision. For example, a graded and seeded multi-purpose playground field may be a suitable requirement for a larger subdivision of twenty (20) or more lots and/or trail improvements may be required to link a subdivision site to adjacent parks and trail systems or to otherwise enhance access to existing or proposed open space areas. In situations where site improvements are required, the site work shall be depicted and fully documented on final subdivision plans and the site work shall be completed or fully bonded to the Commission's satisfaction before final maps are signed and filed on the Land Records.

   In situations where trail improvements are deemed appropriate, the degree and nature of clearing, base preparation, drainage and surface improvements shall be determined taking into account the size and location of the subdivision and site and neighborhood characteristics. Where required, trails shall have a minimum width of five (5) feet and shall have an appropriate base, surface and drainage to allow year round use. Stone dust surfacing may be required and all wetland or watercourse crossings shall utilize cedar or pressure treated wood or other materials acceptable to the Commission. Trail marking and access signage also can be required.

b. With the exception of site work that may be required by the provisions of Sections 13.7 and 13.8a or agricultural activities approved by the Commission, all land dedicated as open space or park land shall be left in its natural state by the subdivider and shall not be graded, cleared or used as a repository for stumps, rocks, brush, soil, building materials or debris.

   Explanatory Note: *This proposed revision clarifies and expands existing provisions regarding the Planning and Zoning Commission's authority to require site improvements in association with subdivision open space dedications. In particular, the new provisions focus on trail improvements and associated construction requirements.*

9) In Section 14, incorporate the following revisions:

a. Revise the Title of this Section from "Bonding" to "Completion of Improvements/Bonding/As Built-Plans"

b. **[14.1 Completion**

The Commission may, with the advice of the Department of Public Works, prescribe the extent to which and the manner in which the streets shall be graded and improved and public improvements and utilities and services provided in connection with any subdivision plan, and may require that all or a specified portion of such work and installations be completed prior to the final approval of the plan. As provided in other provisions of these regulations, the Commission also may require driveway, drainage and other site work to be completed by the subdivider or bonded prior to the filing of the subdivision on the Land Records.]

**14.1 Completion of Improvements**

Pursuant to other provisions of these regulations, subdividers shall be responsible for completing and bonding subdivision improvements, including approved streets, common driveways, sidewalks, trails and parking improvements, drainage and site work improvements. These subdivision improvements shall be completed and/or bonded prior to the filing of the subdivision plans on the Land Records. The Commission, with the advice of the Town's Planning and Engineering staff, may prescribe the extent to which and the manner in which subdivision improvements are completed and associated utilities are provided.

For all subdivision lots that are dependent on new streets for access, the following specific completion provisions shall be met:

No Zoning Permit shall be issued for new dwellings until the roadway binder course and all associated drainage and grading have been completed to the satisfaction of the Town Engineer, or his designated agent, and the Fire Marshal and until the new subdivision road has been fully bonded for completion pursuant to Mansfield's regulatory provisions.

Unless specifically authorized by the Commission, no Zoning Certificate of Compliance shall be issued for new dwellings unless the roadway and all associated drainage, signage, site stabilization and lot monumentation has been completed and accepted by the Town.

Explanatory Note: *The proposed revisions to Section 14, clarify existing provisions regarding the completion of subdivision improvements. For subdivision lots dependent on new streets for access, the revisions incorporates new provisions that link Zoning Permits for new houses to the completion of a roadway binder course and associated site work and Certificates of Compliance for completed houses to the completion of roadway drainage, signage, monumentation and site stabilization work.*

PAGE
BREAK

December 2, 2010
In reply, please refer to:
Docket No. 09-02-10:WA:SIO

Mr. P. Anthony Giorgio, Ph.D.
Managing Director
The Keystone Companies, LLC
56 East Main Street, Suite 202
Avon, CT 06001

David Ziaks, P.E.
President
F.A. Hesketh & Associates, Inc.
6 Creamery Brook
East Granby, CT 06026

Re: Docket No. 09-02-10 - Application of The Keystone Companies, LLC for Certificate of Public Convenience and Necessity for a Community Water System at Ponde Place in Mansfield, CT

Dear Messrs. Giorgio and Ziaks:

The Department of Public Utility Control (DPUC) acknowledges receipt on September 8, 2010, of a Phase 1B Application (Application) from Ponde Place (Applicant). The submitted materials were filed under §16-262m of the General Statutes of Connecticut (Conn. Gen. Stat.) and §§16-262m-1 through 16-262m-9 of the Regulations of Connecticut State Agencies (Conn. Agencies Regs).

The Application consists of well production data and proposed anticipated average daily demands of the proposed Community Water System. The proposed Community Water System would provide water service to three apartment buildings containing a total of 156 units and 18 attached town house units located on Hunting Lodge Road, in Mansfield, Connecticut.

The DPUC and the Department of Public Health (DPH) (together Departments) have completed their review of the Application for the CPCN process. The Departments find that certain CPCN requirements were not met and therefore, the Application cannot be approved. Enclosed is a copy of the DPH's noted deficiencies with the Application.

The DPUC, in concurrence with the DPH, hereby informs the Applicant of the need to amend its Application to correct the noted deficiencies. Review of the Application will be suspended and not be resumed until all of its components are satisfactorily met.

Sincerely,

DEPARTMENT OF PUBLIC UTILITY CONTROL

Kimberley J. Santopietro
Executive Secretary

Enclosure

cc: Service List

# STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

November 16, 2010

Mr. P. Anthony Giorgio, Ph.D.
Managing Director
The Keystone Companies, LLC
56 East Main Street, Suite 202
Avon, CT 06001

| | |
|---|---|
| PROPOSED PWS: | **Ponde Place** |
| PWSID: | **To Be Determined** |
| TYPE OF PWS: | **Community** |
| TOWN: | **Mansfield** |
| DPH PROJECT #: | **2008-0312** |
| DPUC DOCKET #: | **09-02-10** |

RE: **Review of Phase I-B Application for a "Certificate of Public Convenience and Necessity" (CPCN) of the above-referenced Proposed Public Water System (PWS)**

Dear Mr. Giorgio:

The Department of Public Health (DPH) has reviewed the technical components of the Phase I-B application for a proposed community Public Water System (PWS) intended to serve Ponde Place located off of Hunting Lodge and Northwood Roads in Mansfield, CT. As noted in the project submittal, Ponde Place will consist of three apartment buildings comprising a total of 156 units and 18 attached town house units designed for post graduate and junior faculty members of UCONN. The proposed PWS is designed to serve an estimated population of 648 people.

In addition to the Phase 1-B submittal, a water usage analysis dated October 13, 2010, was submitted on October 19, 2010 by F. A. Hesketh & Associates, Inc., project consultant, which recommended that the proposed PWS be designed using an anticipated average daily demand (ADD) of 40 gallons per capita per day (gpcpd) instead of 75 gpcd as required by Section 16-262m-8(c) of the Regulations of Connecticut State Agencies (RCSA). This 40 gpcd ADD figure was based on the Water Conservation Opportunities (UCONN water audit report) dated December 2007, and Penn State and AWWA conservation studies. It was noted that the 40 gpcd consumption rate is strictly for domestic demand that includes toilets, urinals, faucets, showers, and laundry. It does not include the amount of water needed for dining services, irrigation, fire protection, process cooling, and other uses. The water usage analysis recommended a conditional approval of the 40 gpcd ADD with specific conditions outlining the water conservation and monitoring measures that must be implemented.

The Department at this time cannot support a design ADD of 40 gpcd since the water usage analysis was based on several assumptions which may or may not translate to real world conditions. In addition, there is no regulatory authority to mandate the proposed water conservation and monitoring requirements as proposed. As such it would be virtually impossible to guarantee that the 40 gpcd ADD was the actual ADD

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once the system was constructed and activated. Please note that even if the 40 gpcd ADD was approved, it appears that the safe yield of the wells would still not be adequate to serve the full build out of the proposed project.

At a meeting held on July 28, 2010 at DPH, options concerning adequacy of the proposed public water system were discussed. At that time it was indicated to you that if the safe yields of the wells did not have adequate supply capacity, either additional sources of supply would need to be developed or the number of planned units had to be reduced.

Based on the project submittal, the four production wells were pump tested on January 19-22, 2010 for barely 72 hours (71.5 hours average). Pump test results showed that the drawdown of Well #1 and Well #2 was stabilized for more than 24 hours during the pump test. The drawdown of Well #3 was stabilized for a very short period (5 hours) during the pump test. The drawdown of Well #4 was stabilized for 22 hours during the pump test.

The Well Site Suitability Certification dated August 14, 2009 for each proposed well indicated that in Term #9, Ponde Place was required to monitor the UCONN Landfill Monitoring Wells (B302R and MW 105R) during the 72-hour pump test and submit the test result to the DPH for review. It was indicated in Term #10 of the Certification that Ponde Place has proposed to monitor the wells located at 38 Meadowood Road, 61 Northwood Road, and 156 Hunting Lodge Road including the Carriage House Apartments (Well #1 and Well #2) during the 72-hour pump test. The pump test results showed that UCONN Landfill Monitoring Wells (MW-105R-S, MW-105R-M, MW-105R-D, and MW-302R) were monitored during the pump test period. The well located at 38 Meadowood Road was monitored for about a 24-hour period while Carriage House Apartments Well #2 was monitored throughout the 72-hour pump test period. The report indicated that Carriage House Apartment Well #1 was not accessible for monitoring during the pump test. The two other private wells were not monitored because one well had a flooded well pit and could not be safely accessed and the agreement with the homeowner of the other well was not reached to allow the well monitoring.

Well Data Report prepared by GZA GeoEnvironmental, Inc., summarizes the following assessment of the pump test results:

- The pumping of the Ponde Place wellfield had some drawdown influence on the Carriage House Apartment Well #2.

- There appeared to be little or no influence on the well at 38 Meadowood Road during the 24-hour monitoring period.

- The monitoring results indicate that the pump test had contributed some drawdown influence on the UCONN Landfill Monitoring Wells (MW-105R-S and MW-302R). The water level on MW-105R-S showed a drawdown of approximately 1.2 feet.

- The monitoring test results did not exhibit noticeable changes to the water levels on the UCONN Landfill Monitoring Wells (MW-105R-M and MW-105R-D).

Water Quality Test Results

The water quality test results of the proposed wells have been reviewed and found to have acceptable water quality with the exception of turbidity and iron. The reported levels of turbidity and iron of Well #2 are 27 NTU and 2.6 mg/L, respectively. The turbidity level is not in conformance with the State Drinking Water Standard of 5 NTU. The reported iron level of water sample taken from Well #2 exceeded the

Secondary MCL of 0.30 mg/L. In addition, the reported levels of toluene on Well #1, Well #2, and Well #4 are .026 mg/L, .038 mg/L, .016 mg/L, respectively. These levels are below the Maximum Contaminant Level (MCL) of 1 mg/L.

Based on the above assessment, approval of Phase I-B application for a CPCN cannot be considered at this time because the following regulatory CPCN requirements were not met:

| Applicable Regulatory Section | Description of Requirement | Recommended Action |
|---|---|---|
| 1. Section 16-262m-6(d) of the RCSA | A signed agreement between the developer of the water system and the existing regulated public service or municipal water utility or regional water authority must be provided indicating that the final constructed water supply facilities will be dedicated to that utility. With a regulated public service company such agreement will specify any refunds that the developer may be entitled to for each service connection made to the community water system. The utility will be expected to receive from the developer an itemized breakdown of the actual costs of the water system facilities so that proper accountability and rate-making treatments (if applicable) can be afforded to the utility by the Department of Public Utility Control (DPUC). In a letter dated November 3, 2008, Connecticut Water Company (CTWC) has expressed its interest to own and operate an on-site water system dedicated to serve the Ponde Place provided that the site is deemed appropriate for a system and the facilities are properly designed and constructed to meet all applicable design criteria and Public Health Codes. There was no signed agreement between Ponde Place and CTWC submitted. | The management company of the Ponde Place should meet with the CTWC representatives to discuss the terms and conditions and finalize the agreement. A copy of the executed agreement must be submitted to the DPH and DPUC for review. |
| 2. Section 16-262m-8(d)(1) of the RCSA | Each community water system shall be designed to furnish and maintain sufficient facilities to provide a continuous and adequate supply of water; and there shall be at least a 15% margin of safety maintained between the system's safe daily yield and anticipated average daily demand. Unless other acceptable provisions are made to assure continuous service, the community water system should be able to meet the anticipated average daily demand (ADD) with its largest well and/or pump out of service. The anticipated ADD with its largest well and/or pump out of service is 12,960 gpd. The anticipated ADD of Ponde Place is 48,600 gpd (75 gpcpd x 648 people). | Additional wells must be developed to provide sufficient supply. A completed General Application Form and Well Site Suitability Application Form must be submitted to the DPH and approval must be obtained prior to proceeding with the installation of additional wells. If no additional wells are developed, the project size should be scaled down based |

| Applicable Regulatory Section | Description of Requirement | Recommended Action |
|---|---|---|
| | | upon the available capacity of supply. |
| 3. Section 16-262m-8(d)(3) of the RCSA | All wells shall be subjected to a minimum 72-hour yield test, by a qualified well yield tester, such that at a constant pumped discharge rate, the drawdown level has stabilized for at least a 24-hour period. The pump must run continuously during the yield test for the entire 72-hour period irregardless of the anticipated well yield. The drawdown of Well #3 and Well #4 did not stabilize for at least a 24-hour period during the pump test period. All four wells were tested less than the required minimum 72-hour yield test. | All wells must be re-tested simultaneously for a minimum of 72 hours and the water drawdown must be stabilized at least for a 24-hour period during the pump test period. If the drawdown is not stabilized for 24-hour during the 72-hour yield test, the pump test must be extended until the required duration of stabilization drawdown is maintained. |
| 4. Section 16-262m-8(d)(6) of the RCSA | There shall be a safe yield capacity sufficient to supply 75 gallons per person per day and at least 15% additional supply to maintain an adequate margin of safety and be able to accommodate adjacent growth in the future. The anticipated ADD of Ponde Place with 15% MOS is 55,890 gpd (48,600 x 1.15). | Adequate sources of supply must be developed to maintain sufficient supply capacity and provide for a sufficient margin of safety. Alternatively, the project scope may be modified to reduce the number of people to be served by this system. |

The regulatory requirements identified in this project review report must be discussed with your consultant and a revised project submittal addressing the requirements noted in this correspondence must be provided to the DPH and DPUC for consideration.

In addition, realizing that Ponde Place wells had some influence on Carriage House Apartments (CHA) Well #2, this issue should be discussed with CHA management company to ensure that adequate mitigating measures to protect the existing source of supply from potential quality and quantity degradation will be incorporated in the planning design. Further, the public and private wells including the UCONN Landfill monitoring wells located on the proximity of the project site shall be monitored during the re-testing of the wells so that potential interference on these existing wells can be documented. An assessment report outlining a brief description of potential effects that these new sources of supply may have on the adjacent public and private wells must be submitted to the DPH pursuant to Section 25-33 (b) of the Connecticut General Statutes (CGS).

Please contact this office if you have any questions regarding this report or wish to meet to discuss this project.

Sincerely,

Raul M. Tejada
Sanitary Engineer 3
Drinking Water Section

TC/rmt
cc: Mr. Robert L. Miller, Director of Health Eastern Highlands Health District, 4 South Eagleville Rd., Mansfield, CT 06268
Mr. David S. Ziaks, P.E., F. A. Hesketh & Associates, Inc.
Mr. Jim Vocolina, DPUC
Mr. Keith Nadeau, P.E., CTWC

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**Mansfield Open Space Preservation Committee**

Minutes of November 16, 2010 meeting

Members present: Jim Morrow (chair), Quentin Kessel, Vicky Wetherell, Jennifer Kaufman (staff), Susan Westa, prospective member

1. Meeting was called to order at 7:35.

2. Minutes of October 19 meeting were approved.

3. Opportunity for Public Comment: none present.

4. **New Business**

The committee reviewed the Town's open space acquisition process as outlined in the Town's "Open Space Planning, Acquisition and Management Guidelines."

5. **Executive Session**

The committee voted in go into Executive Session at 8:10.

The committee voted to come out of Executive session at 9:10.

6. Meeting adjourned at 9:15.

7. Next meeting on December 21.

Respectfully submitted,

Vicky Wetherell, acting secretary

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MINUTES

MANSFIELD PLANNING AND ZONING COMMISSION
Regular Meeting, Monday, November 15, 2010
Council Chamber, Audrey P. Beck Municipal Building

| | |
|---|---|
| Members present: | R. Favretti (Chairman), J. Goodwin, R. Hall, K. Holt, G. Lewis, P. Plante, B. Pociask, B. Ryan |
| Members absent: | M. Beal, |
| Alternates present: | F. Loxsom, K. Rawn, V. Stearns |
| Staff Present: | Gregory J. Padick, Director of Planning, Curt Hirsch, Zoning Agent |

Chairman Favretti called the meeting to order at 7:01 p.m. and appointed Loxsom in Beal's absence.

**Minutes:**
11-1-10 - Hall MOVED, Plante seconded, to approve the 11/1/10 minutes as written. MOTION PASSED with all in favor except Pociask who disqualified himself.

**Zoning Agent's Report:**
Noted.
In response to an inquiry from Pociask, Hirsch related that recent work on the stage portion of the Paideia project on Dog Lane had been authorized but that plans for the exhibit hall have still not been submitted. Plante noted that Hirsch had done a good job monitoring and enforcing signage requirements on the recent election day.

**New Business:**

1. **New Application to Amend Zoning Regulations, Article VII, Section M.2.n (mixed-use projects in the PB-2 Zone) and Article VIII, Section A (footnote #19 of Schedule of Dimensional Requirements) Storrs Center Alliance, LLC and Mansfield Downtown Partnership Inc., Applicants, File #1246-5**
   Ryan MOVED, Holt seconded, to receive the application of Storrs Center Alliance and the Mansfield Downtown Partnership, Inc, to amend Article VII, Section M.2.n and Article VIII, Section A, of the Zoning Regulations (File #1246-5), regarding mixed use projects in the Planned Business-2 Zone and maximum height provisions in the Planned Business-2 Zone, as submitted to the Commission, to refer it to staff and the Town Attorney for review and comment, and to set a public hearing for December 6, 2010. MOTION PASSED UNANIMOUSLY.

**Old Business:**

1. **Storrs Center Update**
   Padick briefly summarized his 11/9/10 memo and an associated update regarding various elements of the Storrs Center project.
2. **Draft Revisions to the Subdivision Regulations**
   Padick reviewed with the Commission a number of new revisions to the draft Subdivision Regulations. He related that the Commission needs to decide whether the draft is ready for public hearing. After discussing the proposed revisions, a number of issues and concerns were raised and it was determined that some additional modifications should be incorporated before bringing the draft to public hearing. Padick agreed to work on these modifications for consideration by the Regulatory Review Committee at its meeting on December 1.

   It was agreed that additional provisions will be added to the first paragraph of section 5.2 to clarify that the first two design steps are recommended for all subdivisions and not just for those where the regulations require mandatory submissions. In addition, provisions will be added to ensure that the Commission is made aware of all potential subdivisions going through the initial design steps. Furthermore, the draft regulations will incorporate wording to clarify that any recommendations from staff

or advisory committees given to prospective subdivision applicants will not be binding on the Commission when it makes a decision. The PZC will continue as it does now, to render its final judgment after all applicable approval criteria have been met. In response to a question from Pociask, Padick related that upon adoption of new regulations, the Commission could revisit the fee schedule and, as deemed appropriate, fees could be added for the new pre-application submittal provisions. The fee schedule is subject to Town Council approval under ordinance authority. It was agreed to review this regulatory issue at the December 6th meeting.

3. **Request to authorize overhead utility lines over a conservation easement area dedicated in association with the Hawthorne Park Subdivision, PZC File # 1177**
   Favretti noted that Padick had been contacted by a CL&P representative and that further consideration of this issue has been delayed until sometime next year. Therefore, this item will be removed from the agenda until a new request is submitted.

**Reports of Officers and Committees:**
It was noted that the next Regulatory Review Committee meeting has been scheduled for 12/1/10 at 1:15 pm. Favretti raised the possibility of cancelling the PZC's regular meeting scheduled for December 20th. Members indicated support for taking this action but decided to delay a decision on cancellation until December 6th.

**Communications and Bills:**
Noted.

**Adjournment:**
Chairman Favretti declared the meeting adjourned at 8:12 p.m.

Respectfully submitted,

Katherine Holt, Secretary

**DRAFT** MINUTES

MANSFIELD PLANNING AND ZONING COMMISSION
Regular Meeting, Monday, December 6, 2010
Council Chamber, Audrey P. Beck Municipal Building

| | |
|---|---|
| Members present: | R. Favretti (Chairman), M. Beal, J. Goodwin, R. Hall, K. Holt, G. Lewis, P. Plante, B. Pociask, B. Ryan |
| Alternates present: | K. Rawn, V. Stearns-Ward |
| Alternates absent: | F. Loxsom |
| Staff Present: | Gregory J. Padick, Director of Planning, Curt Hirsch, Zoning Agent |

Chairman Favretti called the meeting to order at 7:14 p.m. and appointed Rawn and Stearns-Ward to serve in that order if needed.

**Minutes:**
11-15-10 - Plante MOVED, Hall seconded, to approve the 11/15/10 minutes as written. MOTION PASSED UNANIMOUSLY. Beal noted that he listened to the recording of the meeting.

**Zoning Agent's Report:**
Noted.

**New Business**
**New Application to amend the Zoning Regulations, Article VII, Section P, Uses Permitted in the Planned Business-5 Zone (proposed addition of Veterinary Hospitals) W. Ernst, applicant, PZC File # 1294**
Holt MOVED, Hall seconded, to receive the application submitted by Wendy C. Ernst to amend Article VII, Section P.2 of the Mansfield Zoning Regulations, File #1294 regarding the addition of Veterinary Hospitals as a permitted use in the PB-5 zone as submitted to the Commission, to refer said application to the staff and Town Attorney for review and comment and to set a Public Hearing for January 3, 2011. MOTION PASSED UNANIMOUSLY.
**Consideration of Cancellation of 12/20/10 Meeting**
Plante MOVED, Holt seconded, to cancel the regularly scheduled 12/20/10 PZC meeting. MOTION PASSED UNANIMOUSLY.

**Reports of Officers and Committees:**
It was noted that the next Regulatory Review Committee meeting has been scheduled for 12/15/10 at 1:15 pm.

**Communications and Bills:**
Noted.

**Old Business**
**Draft Revisions to the Subdivision Regulations**
Padick referenced his 12/2/10 memo and reviewed the recently incorporated changes to the 12/1/10 draft Subdivision Regulations. He focused on changes related to issues raised at the last Commission meeting. Pociask MOVED, Holt seconded, that the Planning and Zoning Commission schedule a Public Hearing for Tuesday, January 18, 2011, on 12/1/10 draft revisions to various sections of Mansfield's Subdivision Regulations. Furthermore, that the Planning and Zoning Commission refer the proposed revisions to the staff, Town Attorney, Town Council, Conservation Commission, Open Space Preservation Committee, Zoning Board of Appeals, EHHD, WINCOG Regional Planning Commission and abutting towns for review and comment. MOTION PASSED UNANIMOUSLY.

**Public Hearing**

**Application to Amend Zoning Regulations, Article VII, Section M.2.n (mixed-use projects in the PB-2 Zone) and Article VIII, Section A (footnote #19 of Schedule of Dimensional Requirements) Storrs Center Alliance, LLC and Mansfield Downtown Partnership Inc., Applicants, File #1246-5**

Chairman Favretti opened the Public Hearing at 7:35 p.m. Members present were Favretti, Beal, Goodwin, Hall, Holt, Lewis, Plante, Pociask, Ryan and alternates Rawn and Stearns-Ward. Gregory Padick, Director of Planning, read the Legal Notice as it appeared in the Chronicle on 11/24/10 and 12/1/10 and referenced the following communications received and distributed to members of the Commission: a 12-6-10 email from John and Madge Manfred; a 12-6-70 email from Tulay Luciano; a 12-6-10 email from John and Madge Manfred; a 12-6-10 letter from Quentin Kessel; a 12-5-10 email from Lenore Grunko; a 12-3-10 email from Ruth B. Moynihan; a letter from Dennis O'Brien, Mansfield Town Attorney; a 12-1-10 report from Director of Planning; a 12-1-10 letter from David Morse with two attachments from Education Realty Trust; 11-27-10 Commentary that appeared in the Chronicle submitted by David Morse; and a 2-1-10 Editorial from the Chronicle submitted by David Morse.

Attorney for Leyland Alliance, Tom Cody of Robinson & Cole, and Macon Toledano, V.P., Leyland Alliance presented the background on the project and previously approved applications. Cody discussed the proposed regulation amendment to Article VIII, Section M.2.n. to increase the height provisions in a PB-2 zone from 60' to 85' and to change the 50% residential requirement in the mixed use buildings. He noted that they will soon be submitting a request for modification to the Commissions Special Permit approval of the Dog Lane 1 building.

At this time Chairman Favretti asked for questions from the Commission.

Hall raised concern about voting on the regulation revisions without seeing what the changes will be made to the proposed Dog Lane building.
Pociask questioned what the square footage of the building will be with the increase in height. Cody responded that the portion of the building in the PB-2 zone will be higher but that there would be no increase in the overall density of the project. Toledano added that there is a capacity cap for the entire project but density may shift in different areas.
Pociask questioned what existing building occupants on the north side of Dog Lane will do once the existing buildings are torn down. Cody responded that the existing medical office has chosen to relocate temporarily during construction, but the existing restaurant has not finalized plans at this time.
Holt questioned whether elevations and renderings were available to help members visualize changes. Toledano responded that the drawings currently are not ready for submission but will be completed in time for the Special Permit modification submissions.
Favretti asked what the proposed uses will be in the Planned Business-2 building. He noted speculation that student housing/dormitory uses were planned. Howard Kauffman, Executive Vice President, Leyland Alliance, responded that their partner, Education Realty Trust (EDR) is planned for a mix of professional staff, empty nesters, singles, families, couples, and graduate students. He noted dormitories are not a permitted use.
Plante noted that upon research on the EDR website there is no mention of general residential housing, only student housing.

At this time Chairman Favretti asked for questions from the public.

Sharry Goldman, 187 Browns Road, related that she supported the original downtown plans but now has concerns particularly regarding student housing. Her concerns are detailed in a 12-5-10 letter.
Bruce Goldman, 187 Browns Road, submitted information from a 2009 Annual Report from Education Realty Trust and questioned why an agency that doesn't work primarily developing student housing was chosen? His concerns are detailed in a submitted letter.

Ida Millman, Sycamore Drive-Glen Ridge, questioned whether this development will be taxable and stated she supported the requested height increase.
Robert Roberge, 32 Woodland Road, asked whether there would be any affordable housing units. Cody responded that none of the units are dedicated as affordable housing.
Ron Kelly, 29 Bundy Lane, expressed opposition to the proposed regulation changes and expressed fear for smaller apartments occupied by undergraduate students. He also noted concerns regarding water supply, the number of changes from original plans, decrease in the size of the Town Green and financial obligations for tax payers. He submitted 2 letters for the record.
Peter Millman, Dog Lane, expressed support for the project and the proposed regulation changes. He noted that the public has been misinformed and that the EDR home web page states that their work ranges from freshman to graduate, faculty and staff housing. Millman noted the many differences between this project and Celeron Square and related that it is unfair to compare them and suggest that the current Storrs Center plans for housing will be similar.
Martin Summer, 410 Warrenville Road, stated that he came to Mansfield as a graduate student in 1990 and never left. He expressed support for the project and noted that it has been clearly stated that undergraduate housing is not intended. He added that if the proposed change is cost effective, better for business and the transition of the existing businesses, he remains favor as long as a "New England Village" design is retained.
Kristin Schwab, 85 Willowbrook Road, noted her agreement with Peter Millman's comments and stated that she is comfortable with the proposed changes. She added that this is a small change for an important project and would ensure consistency with the adjacent zoning design district guidelines.
David Morse, 64 Birchwood Heights, expressed opposition to the project as currently planned and doesn't feel that EDR is a good partner.
Betty Wassmundt, Old Turnpike Road, expressed opposition to the regulation revision request and any other action that will facilitate the project going forward. She submitted for the record 3 reports regarding EDR.
Bruce Clouette, 483 Woodland Road, member of the Board of Directors of the Downtown Partnership, urged the PZC to address the zoning amendment request that would make the height provision consistent with the neighboring zone. He noted that much of the public testimony had little to do with the request before the PZC.
Stephen Bacon, Wormwood Hill Road, Chair of the Planning and Design Committee and member of the Downtown Partnership, expressed support for the proposed changes and explained that the renderings are not yet completed, but should be available by the time the submittal for the Special Permit modification is submitted in January. He noted that many of the items brought up by the public tonight are not related to the application before the PZC.

Kaufman responded to Commission member's questions regarding the absence of elevation and site plans for the currently proposed 1A building that would extend into the PB-2 zone. He indicated that the applicants did not consider this information necessary for this application, but the information will be available for the next application. He added that E.D.R. will be available for questions at the Town Councils meeting on the Draft Development Agreement that will be held Thursday, December 9, 2010.

Cody noted that questions and comments raised about noise, traffic and other potential impacts have been addressed as part of the Special Permit Application that was previously approved and will be addressed as part of the Special Permit modification.

Noting no further comments or questions from the Commission or Public, Goodwin MOVED, Ryan seconded, to close the Public Hearing at 9:29 p.m.

Chairman Favretti declared a brief recess at 9:29 p.m.
He then reopened the meeting at 9:35 p.m.

**Old Business**

**Discussion/Consideration of Action on Proposed Regulation Revisions presented at 7:30 Public Hearing, File #1246-5**

Favretti began discussion regarding the proposed regulation change and members raised concerns related to: the lack of justification for changing the regulations; that buildings don't need to look uniform and all the same height; and concern that all the buildings could be built at maximum 85 feet in height. Favretti stated that he doesn't feel the intent is to make all the buildings the same. Pociask doesn't think there is reason not to approve the application. After extensive discussion, Favretti suggested, and it was agreed to by consensus, that the Commission review application submissions, the approved design guidelines, and other communications received, and be prepared to discuss further at the January meeting.

**Storrs Center Permit Timing**

Padick stated that he expects a Special Permit modification application to be submitted at the January 3rd meeting and anticipates elevation and site plans to be submitted as part of that application.

**New Business**

**8-24 Referral: Proposed Development Agreement for Storrs Center Project (Town Council Public Hearing Scheduled for 12/9/10)**

The consensus of the PZC was that the Chairman send a letter to the Town Council stating that the PZC needs additional time to review all documents and comments for discussion at the January 3rd meeting and be prepared to then send a letter to the Council with their response to this item.

**Adjournment:**

Chairman Favretti declared the meeting adjourned at 10:12 p.m.

Respectfully submitted,

Katherine Holt, Secretary

**DRAFT** MINUTES
MANSFIELD INLAND WETLANDS AGENCY
Regular Meeting
Monday, December 6, 2010 1, 2010
Council Chambers, Audrey P. Beck Municipal Building

| | |
|---|---|
| Members present: | R. Favretti (Chairman), M. Beal, J. Goodwin, R. Hall, K. Holt, G. Lewis, P. Plante, B. Pociask, B. Ryan |
| Alternates present: | K. Rawn, V. Stearns-Ward |
| Alternates absent: | F. Loxsom |
| Staff present: | G. Meitzler (Wetlands Agent) |

Chairman Favretti called the meeting to order at 7:00 p.m. Alternates Rawn and Stearns-Ward were appointed to act in the order listed if needed.

**Minutes:**
11-01-10 – Plante MOVED, Beal seconded, to approve the 11-1-10 minutes as written. MOTION PASSED with all in favor except Pociask who disqualified himself.

**Communications:**
The 12-1-10 Wetlands Agent's Monthly Business report was noted.

**Old Business:**
Meitzler reported that he granted an Agent approval to Barry Boyle on 108 Crane Hill Road for a 10 foot by 20 foot tarp covered storage building in the upland review area.

**New Business:**
W1465 - Carlson - Single Family Residence - Dunham Pond Road
Goodwin MOVED, Holt seconded, to receive the application submitted by Neal Carlson (IWA File #W1465) of the Wetlands and Watercourses Regulations of the Town of Mansfield for the construction of a single-family residence on Dunham Pond Road, on property owned by the Eric W. Carlson Revocable Trust, as shown on plans dated 9/17/10, revised through 10/01/10, and as described in other application submissions, and to refer said application to the staff and Conservation Commission for review and comment. MOTION PASSED UNANIMOUSLY.

W1466 - Peter Rich - Construction of a Garage and lean to roof on existing slabs - 42 Fern Rd
Goodwin MOVED, Holt seconded, to receive the application submitted by Peter Rich (IWA File #W1466) of the Wetlands and Watercourses Regulations of the Town of Mansfield for the construction of a garage and lean-to located at 42 Fern Road, on property owned by the applicant, as shown on plans dated 12/1/10, and as described in other application submissions, and to refer said application to the staff and Conservation Commission for review and comment. MOTION PASSED UNANIMOUSLY.

Favretti noted a Field Trip was set for 12/14/10 at 1:30 p.m.

**Other Communications and Bills:** Noted.

**Adjournment:** Favretti declared the meeting adjourned at 7:12 p.m.

Respectfully submitted,

Katherine Holt, Secretary

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Memorandum: December 1, 2010
To: Inland Wetland Agency
From: Grant Meitzler, Inland Wetland Agent
Re: Monthly Business

**W1419 - Chernushek - hearing on Order**

3.10.09: The hearing on the Order remains open and should continue until the permit application under consideration is acted upon.
(The Order was dropped on approval of the application required in the Order.)

4.30.09: Former rye grass seeding is beginning to show green. I spoke with Mr. Chernushek this afternoon who indicated health problems that delayed his starting but indicated he will be working this weekend. I will update on this Monday evening.

5.26.09: A light cover of grass growth has come in. Mr. Chernushek indicates health problems and two related deaths have delayed his start of work since the permit approval was granted. It appears that some light work has started. He has further indicated that he will start a vacation on June 22, 2009 to finish the work.

6.13.09: Work is underway.

6.21.09: Bulldozer work has been completed - finish work remains. The additional silt fencing has been placed along the northerly wetlands crossing, and the additional pipe under the southerly crossing has been installed. Remaining work includes finish grading along edges, spreading stockpiled topsoil, and establishing grass growth.

7.01.09: I spoke with Mr. Chernushek who indicated he expects work to be completed by September 1, 2009. (Site photo attached).

9.03.09: Mr. Chernushek has been working on levelling and grading. The formerly seeded areas have become fairly thick growth surrounding the central wet areas. He has further indicated that with the combination of weather and the slower moving of earth with the payloader compared to the earlier rented bulldozer has led him to contact contractors for earth moving estimates which have not yet been received. The site is not yet finished but has remained quite stable.

9.12.09: I met with Mr. Chernushek today and discussed again what his plans are for stabilizing this work site.

10.01.09: Mr. Chernushek indicated he has not heard back from the contractor he had spoken with about removing material, and is in progress of contacting others. In discussion is removal of material from the site either within the 100 cubic yard limit or obtaining a permit for such removal.

10.28.09: Mr. Chernushek has indicated he has made arrangements with DeSiato Sand & Gravel to remove 750 cubic yards of material. Staff is in the process of clarifying permit requirements.

**W1445 - Chernushek - application for gravel removal from site**

11.30.09: Packet of information representing submissions by Mr. Chernushek, Mr. DeSiato and myself is in this agenda packet as Mr. Chernusheks's request for modification.

12.29.09: Preparation of required information for PZC special permit application is in progress. Tabling any action until the February 1, 2010 meeting is recommended.

1.12.10: 65 day extension of time received.

2.18.10: No new information has been received.
2.25.10: This application has been **withdrawn.**
6.30.10: As viewed from the adjacent property, the upstream and downstream areas have grown to a decent protected surface. I did not see indication of sediment movement.
10.26.10: A sale of the East portion of the Chernushek property has been in negotiation.

**Mansfield Auto Parts** - Route 32
6.10.09: Inspection - no vehicles are within 25' of wetlands.
7.16.09: Inspection - no vehicles are within 25' of wetlands.
8.12.09: Inspection - no vehicles are within 25' of wetlands.
9.14.09: Inspection - no vehicles are within 25' of wetlands.
10.27.09: Inspection - no vehicles are within 25' of wetlands.
11.30.09: Inspection - no vehicles are within 25' of wetlands.
12.28.09: There are two cars that need to be moved. Mr. Bednarczyk indicates their payloader is down for repairs and the cars will be moved as soon as it is repaired.
1.27.10: No change - the payloader is apart with parts on order to complete repairs. It is of 1986 vontage and finding parts is a major proposition.
2.18.10: Same - they are in the process of rebuilding the engine on the payloader.
3.30.10: Same - Mr. Bednarczyk indicates a contuing problem finding engine parts.
4.13.10: Owner indicates the payloader is operating again.
4.15.10: Owner indicates he will have the cars moved this week.
**4.23.10: No vehicles are within 25' of wetlands.**
5.17.10: Inspection - no vehicles are within 25' of wetlands.
6.02.10: Inspection - no vehicles are within 25' of wetlands.
6.23.10: Inspection - no vehicles are within 25' of wetlands.
7.15.10: Inspection - no vehicles are within 25' of wetlands.
9.01.10: Inspection - no vehicles are within 25' of wetlands. Mr. Bednarczyk has started removing tires from the westerly part of his site using roll-off containers. With this arrangement a moderately steady rate of removal of the tires should be possible to maintain until the tires are completely removed.
9.28.10: Inspection - no vehicles are within 25' of wetlands. Tire removal is continuing with 1 to 2 roll-off containers being removed per month.
10.07.10: Inspection - no vehicles are within 25' of wetlands. Tire removal has been continuing.
11.29.10: Inspection - no vehicles are within 25' of wetlands. Owner has been trucking cars for crushing with 6 tires per vehicle. He indicates 3 cars per day or 18 tires per day. The actual number is probably lower than 18.

# STATE OF CONNECTICUT
## DEPARTMENT OF ENVIRONMENTAL PROTECTION

November 3, 2010

John C. Clausen, Professor
UCONN College of Agriculture and Natural Resources
RM 228 YNG
1376 Storrs Rd. Unit 4087
Storrs, CT 06269-4087

RE: Physiological Responses of Phragmites australis to the Timing of Plastic Covering Treatments
Schoolhouse Brook Park
Mansfield, CT

Dear Dr. Clausen:

The Inland Water Resources Division has reviewed the information provided at the October 4, 2010 meeting with Inland Water Resources Division staff including a May 26, 2010 research prospectus regarding the testing of the effect of plastic covering treatments on the growth and physiology of Phragmites australis in a freshwater wetland at Schoolhouse Brook Park, Mansfield, Connecticut

Based on the information provided, the proposed project qualifies as a nonregulated use in wetlands and watercourses pursuant to CGS section 22a-40(b)(1) for the conservation of vegetation. Therefore, an inland wetlands and watercourses permit pursuant to CGS section 22a-39 is not required.

If you have any questions, please call Bob Gilmore at the Inland Water Resources Division at 860-424-3866.

Sincerely,

Denise Ruzicka, Director
Inland Water Resources Division

DR:BMG

cc: Bruce G. Gregoire, UCONN, College of Agriculture and Natural Resources, Dept. of Natural Resources and the Environment, 1376 Storrs Rd. Unit 4087, Storrs, CT 06269-4087

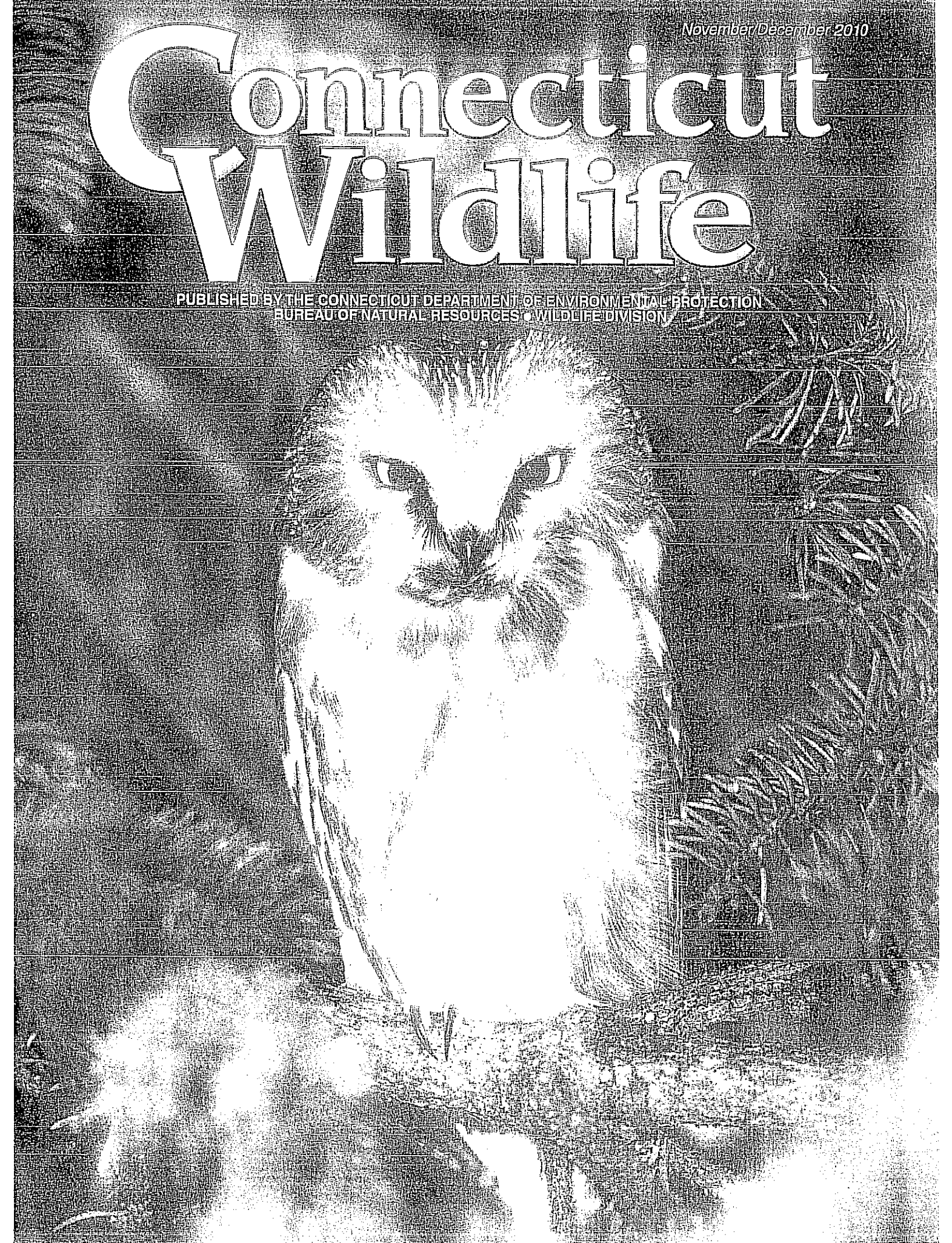
Mansfield Inland Wetlands Agency

PAGE
BREAK

November/December 2010

# Connecticut Wildlife

PUBLISHED BY THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF NATURAL RESOURCES • WILDLIFE DIVISION



# Eye on the Wild

## *Connecticut Hunting & Fishing Appreciation Day 2010*

After many months of hard work and planning, the Friends of Sessions Woods and DEP cosponsored a fun-filled day of free activities on Saturday, September 25, at the Wildlife Division's Sessions Woods Wildlife Management Area in Burlington (see page 9 to learn more). The idea to hold a "Connecticut Hunting & Fishing Appreciation Day" transpired with the non-profit Friends group. Friends wanted to show its appreciation to sportsmen and women for their contributions to the conservation of Connecticut's natural resources by sponsoring a special day to celebrate hunting and fishing. Why hold such an event at Sessions Woods? The acquisition of this property, which is used by hikers, school and scout groups, hunters, and anglers, was made possible through the Federal Aid in Wildlife Restoration Program. Federal aid also was instrumental in the establishment of the Sessions Woods Conservation Education Center. Hunters and anglers pay taxes and special fees on hunting and fishing equipment to help fund wildlife and fish management, habitat restoration, and other conservation programs.

One of the goals of CT Hunting & Fishing Appreciation Day was to hold a free event that would draw the participation of not only hunters and anglers, but families and others interested in the outdoors. The last Saturday in September was chosen for the event because it also is National Hunting and Fishing Day. However, several fairs and festivals also are held all over the state on the same day. The organizers of CT Hunting & Fishing Appreciation Day knew they had a tremendous task in front of them. Friends offered financial support and also obtained grants from the Main Street Community Foundation, and the Clinton S. Roberts Foundation. Organizers invited other DEP Divisions, sportsmen's organizations, and local outdoor equipment retailers to participate. They also planned a multitude of activities and presentations for all ages. Everyone did their best to spread the word about this new event.

When September 25 arrived with its warm, sunny weather, the people steadily came to Sessions Woods, curious about CT Hunting & Fishing Appreciation Day. They left happy and pleased with the activities and programs. Most surprising of all was the number of families with children that attended. CT Hunting & Fishing Appreciation Day turned out to be the perfect family outing. The organizers accomplished their objective of getting families outdoors and introducing them to a whole new world of wildlife and fisheries conservation and outdoor activities. Feedback from attendees and participants (volunteers, sportsmen's groups, retailers) has all been positive.

The Wildlife Division would like to extend its appreciation to everyone who worked hard to make CT Hunting & Fishing Appreciation Day a resounding success.

*Kathy Herz, Editor*

## *Cover:*

*Northern saw-whet owls spend the winter in Connecticut, roosting in dense evergreens near their hunting grounds. Read the article on page 3 to learn more about a project to improve their winter roosting habitat.*

*Photo courtesy of Paul J. Fusco*


# Connecticut Wildlife

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*The Federal Aid in Wildlife Restoration Program was initiated by sportsmen and conservationists to provide states with funding for wildlife management and research programs, habitat acquisition, wildlife management area development, and hunter education programs. Connecticut Wildlife contains articles reporting on Wildlife Division projects funded entirely or in part with federal aid monies.*

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# Restoring Winter Roosting Habitat for the Saw-whet Owl

*Written by Peter Picone*


P.J. FUSCO

The northern saw-whet owl uses evergreen cover for roosting and protection in winter.

Habitat is the foundation of wildlife's existence and, for some species, special habitats can become even more important seasonally. This is the case with the Northern saw-whet owl, which uses evergreen roosting cover during late fall and winter.

The saw-whet is Connecticut's smallest owl. It hunts for white-footed mice in the darkness of night. After their hunting forays, the owls seek the protective cover of evergreens. Saw-whets winter in Connecticut, roosting in dense evergreens near their winter hunting grounds. Evergreens provide important thermal cover during the cold winter months and protection from larger avian predators during daylight hours. Saw-whets also occasionally store captured prey on evergreen branches for later consumption.

As forests age, evergreens like red cedar are displaced by oaks, hickories, and maples. Without forest management, shade-intolerant, early colonizers, such as red cedar, die off in 25 to 30 years.

The Wildlife Division received a U.S. Department of Agriculture Wildlife Habitat Incentives Program (WHIP) grant to restore evergreen habitat at a saw-whet owl winter roosting site on state land in New Haven County. Restoration and enhancement of evergreen habitat was accomplished by clearing away hardwood tree competition around existing evergreens (known as daylighting); and planting new evergreens in clusters near former and current winter roosting areas.

The daylighting of evergreens and site preparation for plantings was accomplished in 2008 with the use of a "brontosaurus" mower. This large apparatus has a drum-chop mowing head that chomps, grinds, and mulches woody vegetation to ground level. Habitat managers consider this machine one of the best tools of the trade to improve sunlight conditions and restore young forests.

In fall 2009 and spring 2010, red cedar, white pine, white spruce, and Norway spruce were planted by Division staff and volunteer Master Wildlife Conservationists in areas cleared by the brontosaurus. Fencing was placed around the cedars to protect them from deer browsing as they are a preferred winter food for deer. Some of the planting stock (bare root white pine, Norway spruce, white spruce) was donated by Richard Jaynes of Broken Arrow Nursery, in Hamden. As the planted evergreens grow, they will improve and retain the Northern saw-whet owl's winter roosting sites on the property.

The Division is grateful to its partners who helped facilitate this habitat restoration project, especially the USDA Natural Resource Conservation Service, DEP Parks Division, Master Wildlife Conservationists, and New Britain High School invasive plant management volunteers.

*Peter Picone is biologist with the Wildlife Division's Habitat Management Program*


P. PICONE, HABITAT MANAGEMENT PROGRAM

Master Wildlife Conservationists plant evergreens to improve winter roosting habitat for saw-whet owls.

# The Future of Moose in Connecticut

*Written by Andrew LaBonte*

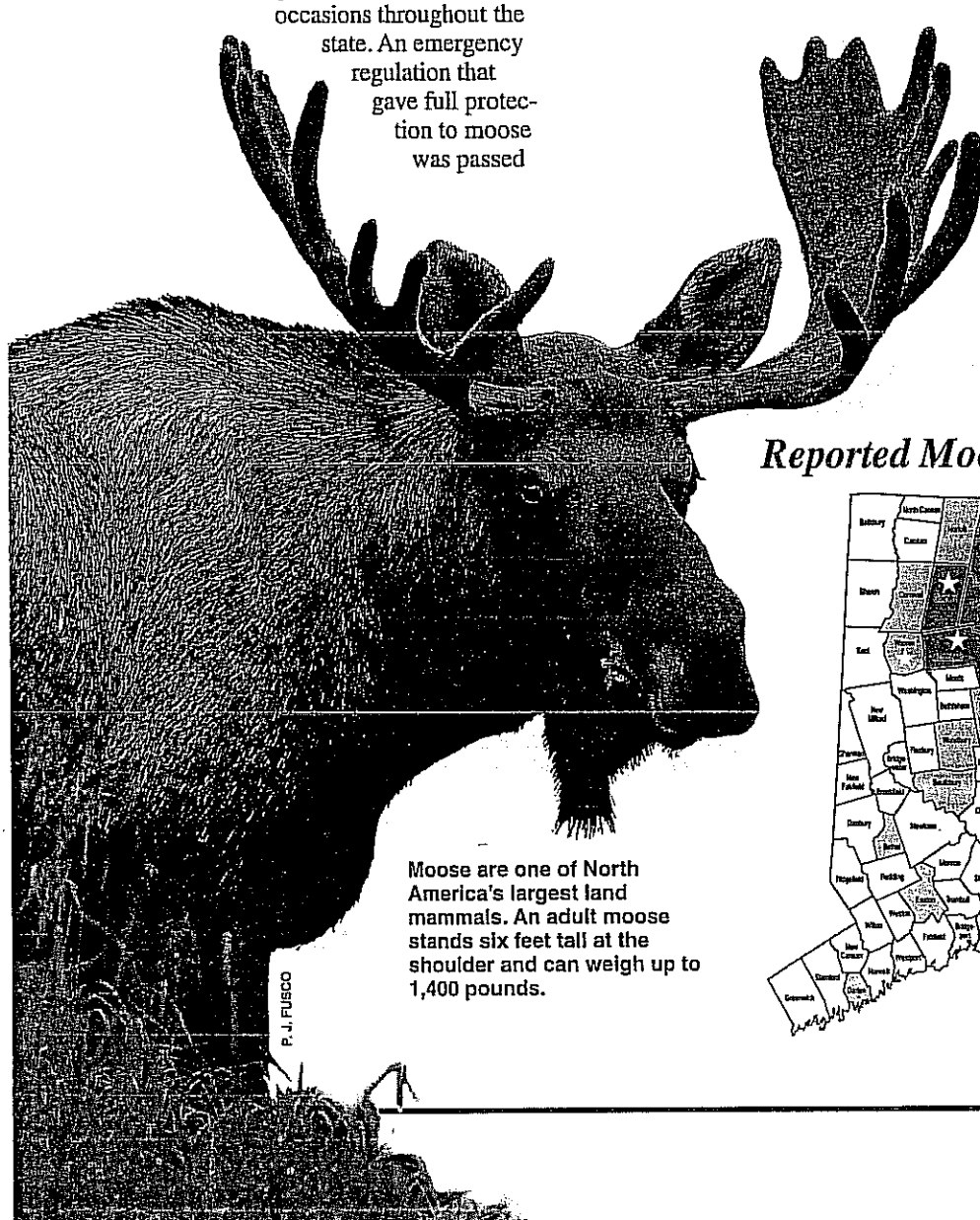
Moose are one of North America's largest land mammals and the largest member of the deer family (Cervidae). An adult moose stands six feet tall at the shoulder and can weigh up to 1,400 pounds. Moose are well adapted for the cold weather of the northern portion of their historic range, which includes the northeastern United States and eastern Canada (including Newfoundland), and westward to the Great Lakes.

A. LABONTE, DEER PROGRAM

**To better assess the future existence of moose in Connecticut, moose are being captured, radio-collared, and ear tagged as part of an ongoing project.**

## *Historic Accounts of Moose*

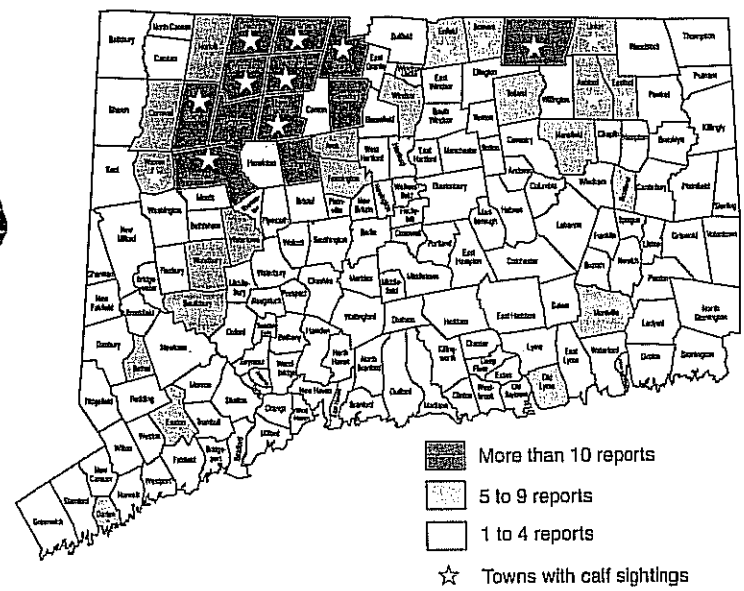
Historic accounts suggest that moose existed in Connecticut, but were extirpated sometime in the early eighteenth century. According to the Connecticut State Archaeologist, no archaeological deposits of moose exist, indicating that moose, if truly ever native, likely occurred in low numbers. Beginning in the early 1900s, moose were reportedly seen on a few occasions throughout the state. An emergency regulation that gave full protection to moose was passed in 1956. Wandering moose occasionally were reported through the early to mid-1990s; however, there was no evidence that a resident population existed. In 2000, the first sighting of a cow with a calf was documented, confirming the establishment of a resident population. Since 2000, a growing number of public and hunter sightings of moose and an increase in moose-vehicle accidents indicate the population continues to expand. The population was conservatively estimated at 74 moose in 2008.



P. J. FUSCO

**Moose are one of North America's largest land mammals. An adult moose stands six feet tall at the shoulder and can weigh up to 1,400 pounds.**

## *Reported Moose Sightings 2000-2009*



## *Limits to Population Expansion*

Continued expansion of the moose population in Connecticut may be limited by several factors, including quality of habitat and food resources, weather, and disease. Optimal habitat has been described as areas dominated by early successional vegetation offering a wide variety of tree stand types and age classes that provide both mature conifer cover and open, disturbed areas for forage. Connecticut forests are primarily mature, with 78% percent of trees greater than 60 years of age. This condition provides plenty of cover from weather. However, during much of the year, moose prefer young forest stands with high stem densities and quality food that can meet the demands of their diet (40-50 pounds of food per day). Moose may expend more calories searching for food than they can consume if the density of optimal forage species is low.

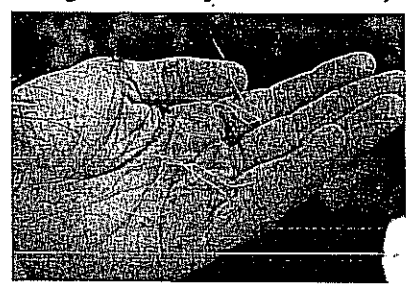
## *Impact of Temperature and Habitat*

Warm temperatures might restrict the southern range expansion of moose into areas with otherwise adequate forest habitat. Moose have difficulty dissipating surplus heat when there are warm temperatures, which can lead to heat stress. Heat stress can lead to reductions in overall activity, influencing feeding time and consumption rates, and can result in weight loss. Average daily temperatures in Connecticut exceed temperature thresholds for moose 200-300 days out of the year. Temperature readings recorded from a GPS-collared moose in northwest Connecticut revealed that the moose was exposed to temperatures above heat stress temperatures 86% of the time.

A model evaluating the suitability of Connecticut's landscape for moose was developed, based on quality and quantity of habitat and temperature. Three counties were classified as unsuitable for moose based on density of roads and humans. The total potential moose in Connecticut is 1,359, based on moose densities derived from the model. Potential moose concentration varied geographically across the state. The areas most suitable for moose exist along the Massachusetts border in northeastern and northwestern Connecticut.

## *Impact of Insects and Disease*

In addition to the challenges associated with finding adequate food and keeping cool throughout the year, moose also face the challenge of coping with insects and disease. Moose can be harassed by biting flies to the point where their health is impacted because they are forced to move into less desirable habitat to escape the flies. Winter ticks, also known as "moose ticks," can significantly impact the health of moose. Unlike the deer tick, the moose tick feeds on one host throughout its life cycle, which begins when eggs hatch into larvae in summer. Larvae are picked up when a moose passes by vegetation where eggs were laid. The larvae remain on the moose through the nymphal and adult stages where they continue to feed until they drop off in May. As many as 50,000 ticks have been reported on moose in several Canadian Provinces. The consequences of heavy tick loads are excessive grooming, hair loss, and even death. Moose with an extensive tick infestation are often referred to as "ghost moose" because they appear to be a light-colored, pale grey instead of dark brown.



**Moose and deer ticks found on a moose captured in Hartland in 2009.**
PHOTO BY P. LEWIS, DEER PROGRAM

A neurologic disease known as "moose sickness" is caused by a brain worm that is found in deer in eastern and central North America. Larval stages of the worm are shed by deer and found on their feces. Intermediate hosts, such as snails and slugs, pick up the larvae. As moose feed on vegetation, snails and slugs are incidentally ingested. The worms carried by the snails and slugs penetrate the wall of a moose's stomach during digestion and migrate along nerves until they reach the vertebral wall. There they enter the tissue of the spinal cord and continue to migrate towards the brain. Brain worm infestations are known to cause weakness in the hindquarters, turning of the head and neck to one side, fearlessness, lethargy, rapid eye movement, blindness, circling, and the inability to stand. Moose infected with brain worm may not always exhibit signs of infection. Brain worm also may not be the direct cause of death. However, the condition has been associated with declines in moose populations throughout North America since symptoms were first documented in Minnesota in 1912. Although deer are the usual host for the worm, they rarely become ill from it.

During 2005, a Connecticut moose became sick and died in Burlington and another displaying symptoms associated with brain worm was euthanized in Goshen. In 2009, a third moose that was behaving oddly in Hartland was captured and later had to be euthanized after it was unable to regain mobility. All three moose were examined at the University of Connecticut and showed infestations of brain worm. This past August, an adult female moose that displayed signs of brain worm (lameness and limited ability to stand) was immobilized in Cromwell and relocated to northwestern Connecticut, where it had the best chance of survival. The moose died the following day. Although the ultimate cause of death was unclear, it is likely that stress from either disease or injury, in combination with stress associated with capture and relocation, was too much for the animal.

## *Collecting Data*

To better assess the future existence of moose in Connecticut, moose are being captured, radio-collared, and ear tagged as part of an ongoing project between the DEP, University of Connecticut, and Northeast Wildlife Damage Management Cooperative, along with additional cooperation from the Metropolitan District Commission. Information is being collected on age, weight, general health, habitat use, and survival of moose.

A female moose that was captured in March 2009 and had been missing since May 2009 was recently observed with a calf in Hartland. The cow had given birth to a calf earlier this year and both have been seen with a bull collared in January 2010 for the past month.

Anyone who observes a moose in urban areas of Connecticut should contact the Wildlife Division's Franklin office at 860-642-7239 or Sessions Woods office at 860-675-8130 during office hours (Monday through Friday, 8:30 AM-4:30PM), or DEP Emergency Dispatch (860-434-3333) after hours. All other observations can be reported on the DEP Web site at www.ct.gov/dep/wildlife.

*Andrew LaBonte is a biologist with the Wildlife Division's Deer Program*

# Blue Spots and Spade Feet:

## *DEP study is focused on two of New England's rarest amphibians*

*Written by Kevin J. Ryan*

Bucolic eastern Connecticut, with its gently rolling hills and scenic farm fields, is a herpetological hot spot. The region is home to two of New England's rarest amphibians: the eastern spadefoot toad and the pure-diploid blue-spotted salamander.

If "spadefoot" and "pure diploid" are terms that leave you wondering, you're in good company. Although the DEP identified the spadefoot and bluespot as "Species of Greatest Conservation Need" in its 2005 Comprehensive Wildlife Conservation Strategy and both species are endangered in Connecticut, surprisingly little is known about either animal. So, in an effort to learn more about these animals' habits and preferred habitats and to better guide conservation strategies, DEP partnered with the University of Maine Department of Wildlife Ecology and CTHerpConsultant, LLC, in 2008 to gather much-needed data on these species. The overarching goal of this study is to determine the best way to guide development in a way that supports persistence of these species. At the time of this writing, the study is in its third year, and a fourth and final season is planned for 2011.

### *Eastern Spadefoots: Desert Animals Stuck in Desert Ways*

Little-known and somewhat misnamed, eastern spadefoots are not, in fact, true toads like our ubiquitous American and Fowler's toads. Somewhere between a toad and a frog, these desert amphibians are believed to have evolved from a common ancestor in the arid southwestern United States and northern Mexico. Over millennia, spadefoots expanded their ranges and evolved into separate species. Presently, there are six species west of the Mississippi River and one east – the eastern spadefoot. In New England, known spadefoot populations are usually found in river valleys at sites below 200 feet in elevation.

Even the most ardent spadefoot enthusiast will admit that they are odd-looking animals, and it doesn't take a trained eye to tell them apart from Connecticut's other anurans (frogs and toads). Eastern spadefoots are considerably less warty than true toads, have vertical pupils like those of a pit viper, and bear a whitish, lyre-shaped pattern on their backs. They owe their name to the sharp-edged, spade-like projections on their hind feet called tubercles which are used for corkscrewing themselves into underground burrows. Digging burrows – which can be up to six feet deep – are a relic response to life in the deserts in which these animals evolved. Connecticut isn't exactly arid, but these burrows still allow spadefoots to avoid predators and desiccation.

Another trait that harkens back to desert origins is their arrhythmic, explosive breeding events. While every other amphibian in New England adheres to a predictable, annual breeding cycle, spadefoots wait for intense rains in spring or summer to initiate truly explosive events lasting anywhere from one night to several days. These events are best identified by raucous calling reminiscent of the cawing of crows. Yet, for all this sound and fury, a given population may go years without breeding. These periodic emergences gave rise to the myth that spadefoots remain underground, completely inactive, for years at a time. (Spadefoots do emerge periodically at night to feed.)

When they do breed, the resulting offspring bear yet another desert adaptation. Because water in the desert dries up quickly, larval spadefoots everywhere develop accordingly. Eggs can hatch in only a few days and, under the right conditions, it takes a mere two weeks for a tadpole to transform into a juvenile. Other "rapidly" developing anurans, wood frogs for example, take two to three months to develop into froglets.

While adapted to conditions other amphibians would find prohibitive, no amount of evolutionary conditioning has prepared the spadefoot for its current challenge—human-dominated landscapes. Spadefoot populations have been extirpated due to development, including one well-known population near New Haven which was extirpated in the 1930s – presumably to urbanization.

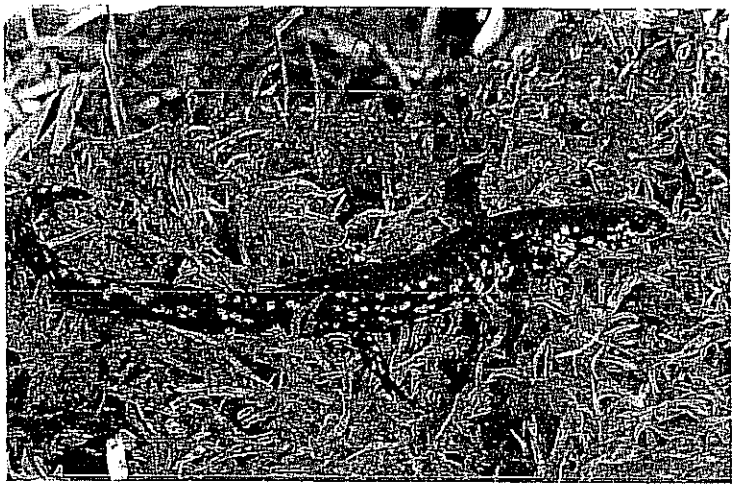
T. MAMMONE

The eastern spadefoot toad has a characteristic lyre-shaped pattern on its back. This toad is listed as an endangered species in Connecticut.

At the natural edge of their range and up against the ticking clock of seemingly inevitable land-use conversion, there is still time to safeguard the future of this odd little creature. Several populations are still known from the northern portion of the Central Connecticut Lowland, and more recently, spadefoots have been discovered in the Quinebaug River watershed in eastern Connecticut. As we learn more about their life history, we are better able to guide development for the mutual benefit of both species.

### *Pure-diploid Blue-spotted Salamanders: Normal Is Unique*

Blue-spotted salamanders are one of several species of Connecticut salamanders belonging to the family Ambystomatidae, the mole salamanders. Individuals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A pure-diploid blue-spotted salamander from the Quinebaug Valley. This amphibian is listed as an endangered species in Connecticut.

of this family are most often encountered on warm, rainy, spring nights when they undertake annual breeding migrations en masse to their ancestral breeding wetlands. Adult mole salamanders use wetlands only for several weeks during spring (with the exception of the marbled salamander, which breeds in the fall), spending the rest of their lives in forests adjacent to breeding wetlands.

The story of blue-spotted salamanders is a complicated one. Throughout much of New England, most salamanders we call "bluespots" are actually part of a genetic mélange which stemmed from the hybridization of two species millions of years ago. By and large, then, a bluespot isn't just a bluespot...unless it is. To better understand this, let's take a step back.

Most land-dwelling vertebrates are "diploid," meaning they have two sets of chromosomes: one from an individual's mother and one from its father. Salamanders in unisexual populations are "polyploid," meaning that they have multiple sets of chromosomes – in some cases up to five. In a given ambystomatid salamander, these extra chromosome sets can be from several other closely-related species. For Connecticut's bluespots, those extra sets come from the Jefferson salamander.

If the species' genetic ambiguity wasn't strange enough, its sexual habits are guaranteed to raise eyebrows. Populations of these hybrid species complexes generally consist only of females. Yet, despite having no males, they still need male sperm to reproduce. During the breeding season, female unisexual salamanders "steal" sperm from males of closely-related species. Male salamanders release sperm packets in the water of breeding areas before the females arrive. Once the females arrive at the breeding areas, they deposit the sperm packets in their bodies. The "stolen" sperm initiates egg development, but generally, the genetic material is not incorporated into the young. This type of sperm-stealing reproduction has been recently termed "kleptogenesis."

At first blush, this sort of reproductive strategy may seem unusual. Yet, throughout New England's wetlands, genetically muddled female salamanders use sperm from unrelated males every spring. The rare exceptions occur in three known populations of sexually reproducing, genetically pure blue-spotted salamanders — on the eastern tip of Long Island, New York at Montauk; in the Hockomock Swamp in Massachusetts; and in the Quinebaug River watershed in eastern Connecticut. These diploid populations are thought to be of the same lineage which remained geographically isolated from the unisexual, kleptomaniacal masses after the last glaciation.

The rare, puritan diploid bluespots look a little different from their complex cousins. Genetically pure blue-spotted salamanders are the smallest of Connecticut's mole salamanders; they are black with blue or bluish-white spots on the sides of the body and tail. Their narrow heads taper to a rounded snout. Unisexual blue-spotted salamanders tend to be larger, brownish, and have considerably wider heads.

Most studies of blue-spotted salamanders focus on genetics of unisexual populations, and little is known about their life history. Most published studies on the species recognize that they were working with unisexual populations, but do not attempt to reconcile their ecology with their genetics. Studying the ecology of diploid bluespots serves as a baseline for examining the influence of other species' genes on unisexual populations.

## *Connecticut Study*

The current Connecticut study is taking place at two field sites in the eastern part of the state that are both inhabited by eastern spadefoots and pure-diploid blue-spotted salamanders. Specifically, the objectives of this study are to assess the animals' breeding population sizes, fidelity to breeding sites, movement patterns to and from breeding wetlands, the proportion of juveniles surviving to become adults, and non-breeding habitat use. Tried-and-true methods complement a few new techniques to collect information on both animals.

## *Pitfall Trapping*

Pitfall trapping is a technique used in ecological studies to capture small animals, such as insects, small mammals, reptiles, and amphibians. It allows researchers to determine the species present on a site, and to estimate population size. Due to problems with indiscriminate capture, the Wildlife Division currently only permits pitfall traps to be used for long-term permitted studies like this one.

Species composition, as determined by pitfall trapping, also gives clues to possible between-species competition for breeding sites and/or food resources; aids in the assessment of potential predator-prey interactions; and gives insight into facultative use of pools by other species.

The layout of pitfall trap arrays at research sites surrounds breeding pools and compartmentalizes the habitat types present. This allows the assessment of population-wide movements.

Blue-spotted salamanders and eastern spadefoots captured in pitfall traps are surgically implanted with Passive Integrated Transponders (PIT tags). PIT tags are glass-encased microchips that emit a unique identification number when scanned by a reading device. From that moment on, each animal with a PIT tag is identifiable at the individual level, and subsequent recaptures can be tracked.

## *Radio-telemetry*

A subset of blue-spotted salamanders and spadefoots toads have been implanted a with radio-transmitters, allowing their every move to be tracked. Each time an animal shifts its location, a suite of macro- and micro-habitat information is recorded, including canopy cover, leaf litter depth, and soil temperature. Habitat information is recorded at two random sites for each animal location to compare the habitats that study animals are using versus other available habitats.

*continued next page*

## *Blue Spots and Spade Feet*

*continued from page 7*

### *PIT Tag Scanning*

PIT tags are being employed as a novel method of detecting blue-spotted salamanders in situ via methodical scanning with a PIT tag reading device equipped with a modified antenna. The ordeal is reminiscent of a person searching for buried treasures with a metal detector. Locating salamanders in this fashion allows for the examination of habitat use at both coarse and fine scales. If salamanders are found using a habitat disproportionately to the amount of a particular habitat, then the salamanders may be exhibiting a preference for that habitat type. As with telemetry, microhabitat information is collected at each salamander location.

### *Toad-totes*

To collect data on non-breeding emergences of eastern spadefoots, the antenna of another type of modified PIT tag reading device, dubbed a "toad-tote," is placed over the burrow of a PIT tag-implanted individual. The reader subsequently records the animal's PIT tag number as well as the date and time the tag number was recorded. Once a spadefoot emerges from its burrow and moves away from the antenna, its tag is no longer read, which is reflected in the stored data in the PIT tag reader. When the spadefoot returns to its burrow, the reader again begins to record the PIT tag number. Collecting data in this fashion provides an assessment of when and for how long spadefoots emerge. Comparing emergence data to weather information will be helpful in determining what spurs spadefoots to the surface for both breeding and non-breeding emergences. This knowledge may in turn be useful for conducting presence/absence surveys as new sites can be searched when spadefoots are likely to be active.

### *Spadefoot searches*

To discover new localities of eastern spadefoots in eastern Connecticut, researchers have been searching at night during presumed peak spadefoot activity periods. Surveys have been concentrated on areas identified by the "Predicted Spadefoot Toad Habitat Map" created by Wildlife Division technician Kate Moran. The map is based on a Geographic Information System (GIS) model which incorporates elevation and soil characteristics of known spadefoot locations to predict further areas of suitable habitat (see "GIS Aids in Identifying Potential Spadefoot Toad Habitat," in the July/August 2009 issue of *Connecticut Wildlife*).

### *An Opportunity to Act*

Amphibians are sentinels of planetary health – the proverbial canaries in a coal mine – and they are declining worldwide more rapidly than any other vertebrate group, including birds and mammals. In North and South America, nine species have been extirpated in the past 100 years and the present existence of another 117 species remains unknown. Of North and South America's 1,187 amphibian species, 39% face extinction, 337 of which are classified as critically endangered.

In the northeastern United States, habitat degradation, loss, and fragmentation have been identified as the main causes of decline in amphibian species.

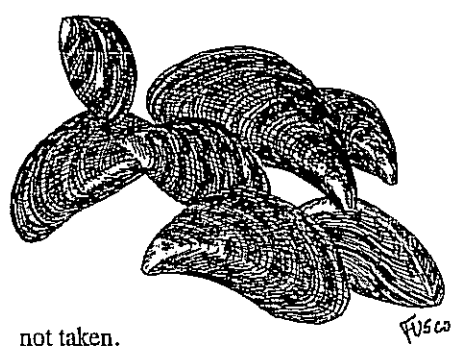
The best-intentioned conservation efforts risk crumbling if their foundation is not one of sound science. While much of the Northeast experiences significant industrial, commercial, and residential development, eastern spadefoots and blue-spotted salamanders face greater and greater habitat loss. And, while it is a logical enough response for concerned citizens to wring hands and decry bulldozers, solid research into how these animals make their living can be used to guide most development around them. Their long-term viability hinges on the public's understanding of the value of biodiversity, the dedication of scientists logging long hours in the field and lab, and willingness of local planning departments and the development community to be open to changes in business as usual.

*Kevin J. Ryan is a graduate research assistant from the University of Maine Wildlife Ecology Department*

# Zebra Mussels Discovered in Lakes Zoar and Lillinonah

The aquatic, invasive zebra mussel has been discovered in Lake Zoar and Lake Lillinonah, two large impoundments on the Housatonic River in western Connecticut. This is the first report of a new infestation since zebra mussels were discovered in Connecticut in 1998 in East and West Twin Lakes in Salisbury. It is uncertain if the mussels found in Lakes Lillinonah and Zoar are the result of downstream migration from upstream sources or a separate introduction.

Zebra mussels have the potential to cause much damage by displacing native mussels, clogging power plant and industrial water intakes, affecting public drinking water distribution systems, and disrupting aquatic ecosystems. This invertebrate can spread from one water body to another through boating and fishing activities if proper precautions are not taken.



The zebra mussel is a black and white-striped bivalve mollusk, which was introduced into North American waters through the discharge of ship ballast water. Since its discovery in Lake St. Clair (Michigan/Ontario) in 1988, the zebra mussel has spread throughout the Great Lakes, Mississippi River system, and most of New York State.

Zebra mussels have specific water chemistry requirements, and are limited to waters with moderate to high calcium concentrations and pH. In Connecticut, suitable habitat for zebra mussels is mostly limited to a number of water bodies in western portions of the state.

Signs are being posted at Lakes Lillinonah and Zoar to alert the public about the presence of the zebra mussels and what precautions should be taken to prevent their spread. The DEP will continue to monitor these lakes and others throughout the state. Possible sightings of zebra mussels and other aquatic nuisance species should be reported to the DEP Inland Fisheries Division at 860-424-3474. More information can be found on the DEP Web site (www.ct.gov/dep). Look for an in-depth article about zebra mussels in a future issue of *Connecticut Wildlife*.

# CT Hunting & Fishing Appreciation Day Is a Huge Success

*Written by Kathy Herz, Photography by Paul Fusco*

The DEP and Friends of Sessions Woods cosponsored Connecticut Hunting & Fishing Appreciation Day on September 25 at the Sessions Woods Wildlife Management Area in Burlington. This first-time event was a huge success as approximately 1,000 people, mostly families, attended. There were activities for all ages, along with interesting programs and workshops about hunting and fishing, target shooting, 3-D archery, casting pools, and hunting dog demonstrations. The Congress of Rough Riders of Naugatuck provided scheduled demonstrations of Cowboy Action Shooting. Most importantly, attendees had the opportunity to speak face-to-face with DEP staff from the Wildlife, Inland and Marine Fisheries, Law Enforcement, Boating, and Forestry Divisions, as well as with representatives from over 30 conservation, hunting, and fishing organizations. Attendees age 16 and older were able to enter a drawing for door prizes, including a kayak, shotgun, and fly-rod.

Children participated in several fun activities and crafts, such as track making, face painting, a blindfolded ropes course, and a scavenger hunt. Those who completed the scavenger hunt received a bird identification book and were automatically entered into a drawing for a backyard wildlife gift package.

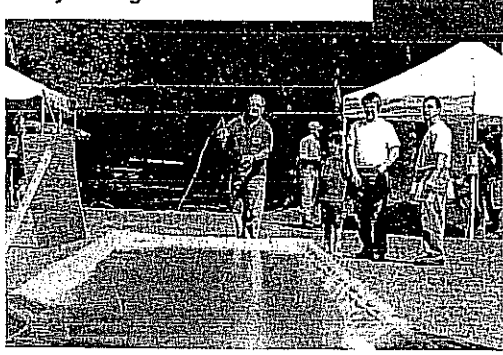
Financial support for the event was provided by the Friends of Sessions Woods, the Main Street Community Foundation, and the Clinton S. Roberts Foundation.

A certified range safety officer helps a youngster as he shoots a .22 rifle at a target.


Friends of Sessions Woods members staff the welcome table.

The hands-on wildlife quiz was a popular activity.


Those who attended Hunting & Fishing Day were able to make turkey calls, learn about forestry and boating in CT, observe Cowboy Action Shooting, and practice flycasting.



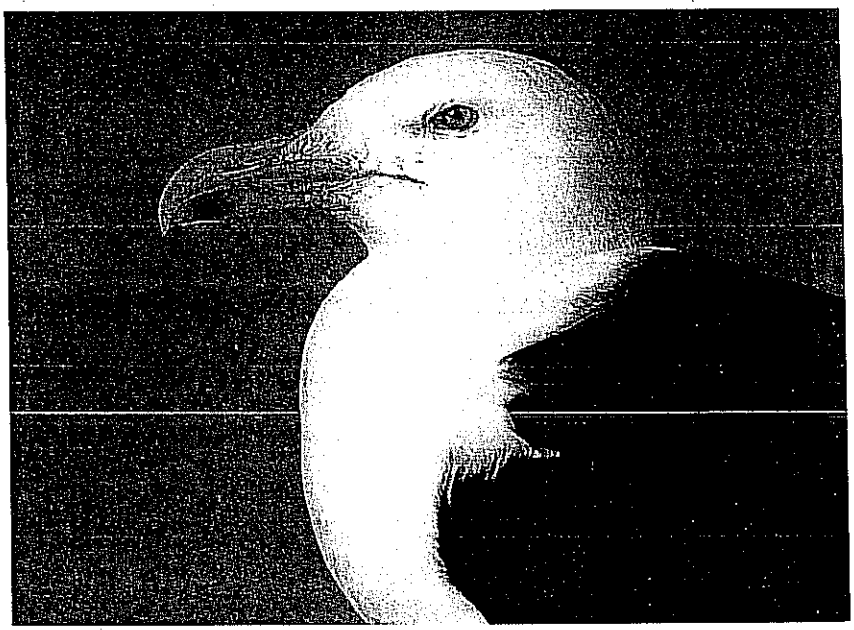
Attendees age 16 and older were able to enter a drawing for door prizes (left). Archery was another popular activity (right). Conservation Education/Firearms Safety Instructors were on hand to provide instruction.

# Large and in Charge - The Great Black-backed Gull

*Article and photography by Paul Fusco*

Gulls are common and familiar birds to most Connecticut residents. Some species breed here, some migrate through the state, and some spend the winter. Ten species of gulls regularly occur in Connecticut at one time of year or another. Among them is the largest gull in the world, the great black-backed.

The great black-backed gull is a resident, meaning that individuals can be found in Connecticut year round. The population in our region has increased dramatically since the first half of the twentieth century. The great black-backed is an opportunist that has adapted to taking advantage of human-related food sources. Landfills and trash along the shoreline, including fishing waste, provide a readily accessible source of food.



The strong, heavy bill of the great black-backed gull is frequently used for catching and killing prey.

## *Description*

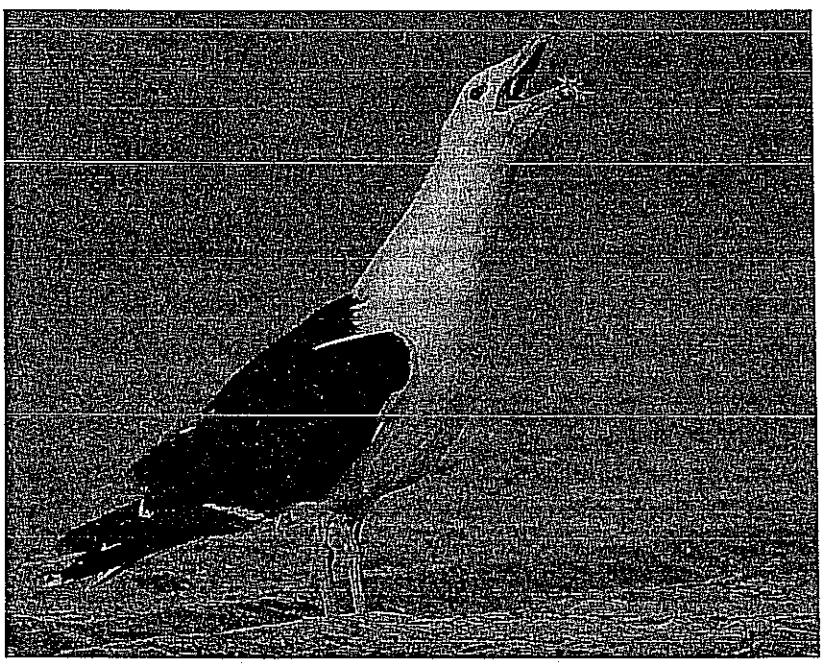
Great black-backed gulls share the same body structure as other members of the gull family, except they are bigger. They have long, broad wings; a short, rounded tail; and webbed feet. Adults have a black back and black topside to their wings (mantle). The head, body, and wing undersides are snowy white. First year immatures have contrasting back markings, a pale head, and a black bill.

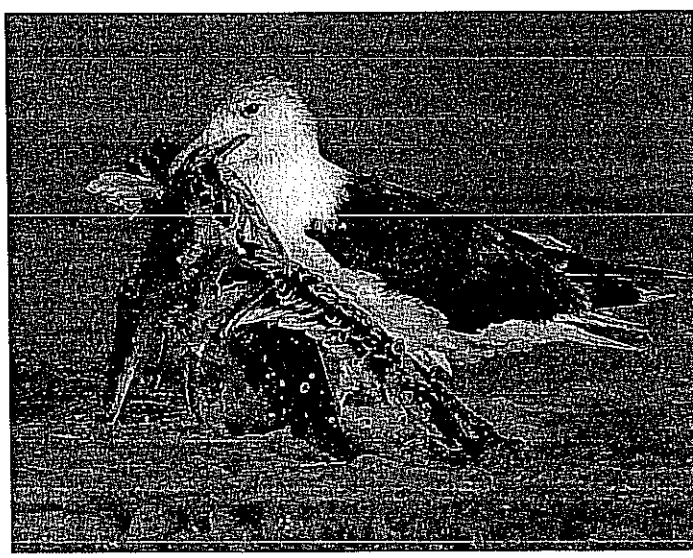
With a body length of 32 inches and a wingspan of up to five and one-half feet, the great black-backed is truly an impressive and powerful bird. The large bill is strong and stout. It has a slight hook that is used to catch and kill prey, and tear flesh. Adults have a red spot on their lower mandible that chicks will peck at to get the adults to feed them.

## *Distribution*

Common within their range, great black-backed gulls are found on both sides of the north Atlantic. Their breeding range extends from the middle Atlantic states north along the coasts of the Canadian Maritime provinces to southern Greenland, Iceland, and the coast of Europe from Scandinavia to Portugal. Although they are primarily sedentary, many withdraw from the northernmost latitudes in winter. Some birds may move as far south as coastal Florida and inland to large rivers or lakes as far west as the Great Lakes.

Great black-backed gulls are primarily coastal species. They often seen foraging far out at sea as they are known to follow feeding humpback whales and tuna to take advantage of smaller fishes that may be forced to the surface. The scientific name, *Larus marinus*, is both descriptive and fitting, meaning ravenous bird of the sea.



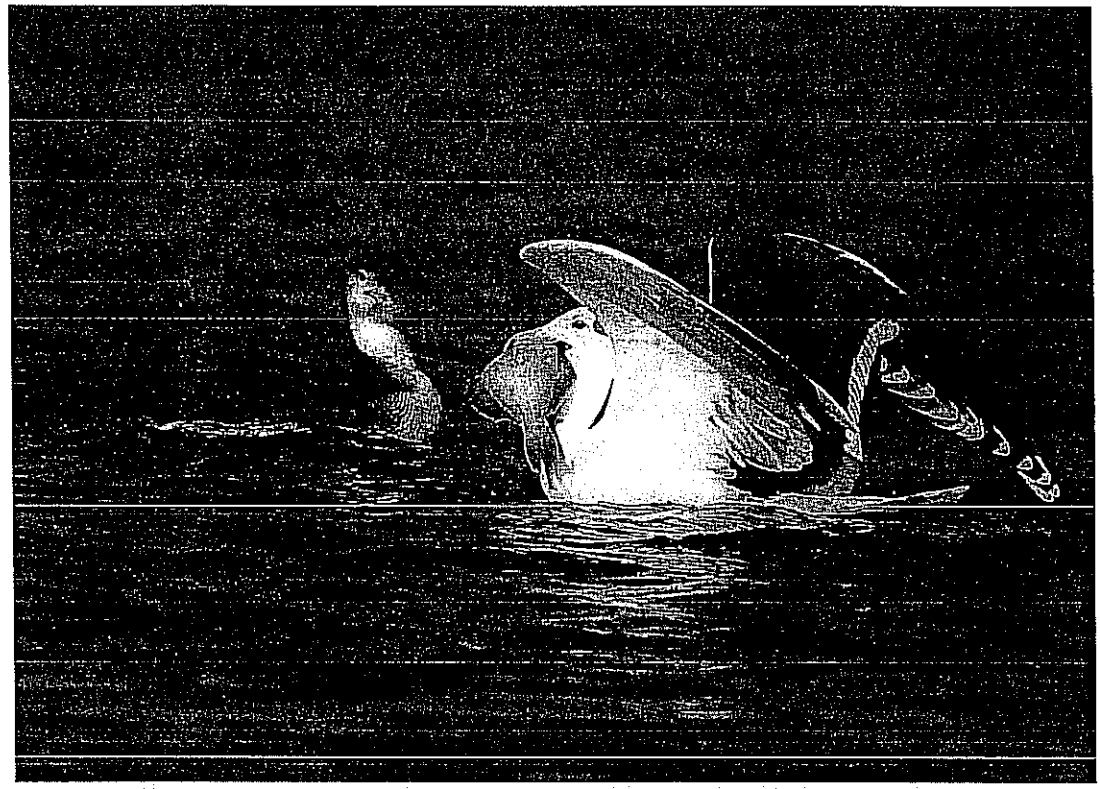


Above, a gull calls in an aggressive posture, while at right, a great black-backed gull exits the water carrying a freshly-killed black skimmer fledgling.

## *Behavior*

Gulls are expert fliers, using minimal energy by gliding and soaring to cover large distances in their search for food. The great black-backed is capable of covering extreme distances as it surveys its coastal and open water domain. Like an eagle, it can be seen riding the wind to circle high above the shoreline, dropping down in smaller circles to join a feeding group on the water.

It is the great black-backed gull that takes control in a group of other gulls. Its domineering behavior is so aggressive that no smaller gull dares to challenge it. Even amongst themselves, great black-backed gulls will sometimes battle one another for dominance to the point of injury. Attacks are carried out by using their powerful wings, feet, and sometimes bill to mercilessly subjugate their opponent. In fact, injuries are one of the principle causes of death in the population.



A great black-backed gull starts to make off with its catch of flounder as a common loon looks on.

Along with scavenging, most gulls feed on small fish and invertebrates, including mollusks. The great black-backed gull also is a ruthless predator that is known to attack and kill chicks and adults of other birds, including puffins, murres, ducks, terns, skimmers, and smaller gulls. These gulls are known to knock smaller birds out of the air, coming in to kill them once they hit the water. Great black-backed gulls also are pirates, regularly robbing other seabirds of their catch.

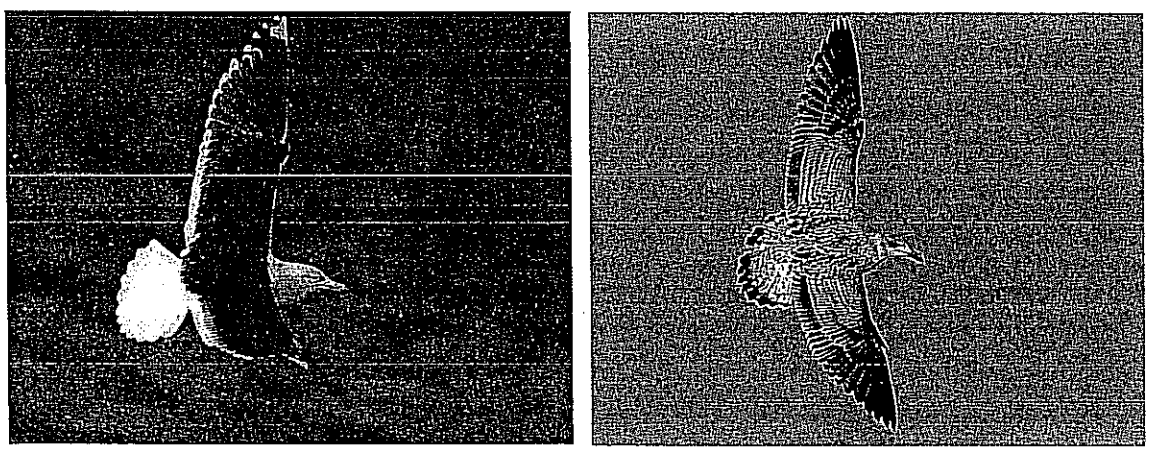
Great black-backed gulls usually start breeding at four to five years of age. They nest singly or in loose colonies on small rocky or grassy islands, barrier beaches, and other isolated coastal areas that are free of mammalian predators.

## *Conservation and Management*

Along with many other avian species, great black-backed gulls were once widely hunted for their eggs and feathers. That practice was halted when two bird conservation laws, the Lacey Act (1900) and Migratory Bird Treaty Act (1918), were passed, preventing exploitation. Since that time, the population has been increasing and slowly spreading southward. On this side of the north Atlantic, the great black-backed was once constrained to the Canadian Maritimes. The first documented nesting in Massachusetts was in the 1930s, and Connecticut followed with its first nesting in the 1950s.

When great black-backed gulls are in close proximity to sensitive nesting colonies of terns and other seabirds, problems sometimes develop. The gulls have the capacity to greatly impact nesting and productivity of the other species. The smaller birds, along with their eggs and chicks, are highly vulnerable to the aggressive predatory behavior of the larger gull. In some situations, whole colonies of terns and other seabirds can be at risk of total nesting season failure or colony abandonment.

Wildlife managers in the Northeast region have undertaken measures to control populations of great black-backed gulls at sensitive locations to provide better nesting opportunities for endangered and threatened birds. Some of these measures have had success in protecting a few of the region's tern colonies.

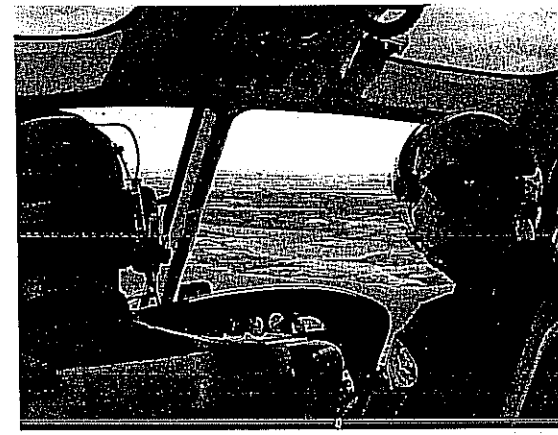


Both adults (left) and immatures (right) exhibit long, broad wings and short, rounded tails. Adults have a black mantle (topside of wings and back), while young birds have contrasting markings with a pale head.

*Paul Fusco is the Art Director and Wildlife Photographer for the Wildlife Division's Outreach Program*

# 2010 Atlantic Population Canada Goose Banding:
## *A Personal Experience*

*Written by Kelly Kubik*



K. KUBIK, MIGRATORY BIRD PROGRAM

**Airplanes, helicopters, and boats are the primary means of transportation in the remote Ungava Peninsula in northern Quebec, Canada.**

Three distinct populations of Canada geese are present in Connecticut during certain times of the year. Two are migratory, spending their winters in the state. The third is a year-long, resident population. One of the two migratory populations is the Atlantic Population (AP). These geese nest primarily on the Ungava Peninsula in Nunavik, in northern Quebec, Canada, and spend the winter from Massachusetts southward to the Chesapeake Bay region of the Atlantic Flyway.

### *Banding at Breeding Grounds*

The Atlantic Population was once considered the largest Canada goose population in North America, peaking at nearly one million birds during the 1970s. Unfortunately, the AP suffered a precipitous population decline during the late 1980s and early 1990s that led to the closing of the regular Canada goose hunting season in the Atlantic Flyway in 1995. After this closure, waterfowl managers decided that AP geese needed to be monitored directly on their breeding grounds rather than on their wintering grounds, as was traditionally conducted. Part of this new monitoring program was the initiation of a breeding ground banding program in 1997. This banding project is conducted in two separate regions on the Ungava Peninsula: Hudson Bay and Ungava Bay.

This pre-season banding program is vital to the management of AP Canada geese, not only in Connecticut but throughout the entire Atlantic Flyway. The data derived from this project are essential for monitoring adult and juvenile survival rates, timing and distribution of harvest, and population delineation. The program is a collaborative effort between the Arctic Goose Joint Venture, Canadian Wildlife Service, Ducks Unlimited Incorporated, Makivik Corporation, Nunavik Hunting, Fishing and Trapping Association, United States Fish and Wildlife Service, and the Atlantic Flyway Council, of which the Connecticut Department of Environmental Protection is a member.

### *Corralling Geese by Helicopter*

This year, I participated in the pre-season banding of Atlantic Population geese along the Hudson Bay for a second time. On August 5, 2010, I arrived in the Inuit community of Puvirnituq via a seven-hour plane ride from Montreal, Quebec. I subsequently rendezvoused with an Ontario Ministry of Natural Resources (OMNR) helicopter that took me 40 miles south to our lodge on the Polemond River. There were nine individuals in our camp and we worked in two separate banding groups. I was a member of a four-person crew that was also comprised of an OMNR pilot, OMNR engineer, and a waterfowl biologist from Delaware. The other banding crew in the camp included a helicopter pilot from Nunavik Rotors and four Canadian Wildlife Service employees.

While banding geese in this remote sub-arctic region is similar to the resident Canada goose banding that occurs in Connecticut, it does have some very distinct differences. Because this area is comprised of roadless wilderness, a helicopter was used to locate, drive, and corral the geese into a portable net. After the geese were captured, we separated the goslings from the adults and then sexed and banded each goose. We also recorded the band numbers of any birds that were banded in previous years. To increase the probability of not capturing any molt migrant resident geese, only flocks of molting geese that contained goslings were caught. Skull mea-

P. LABONTE- CANADIAN WILDLIFE SERVICE

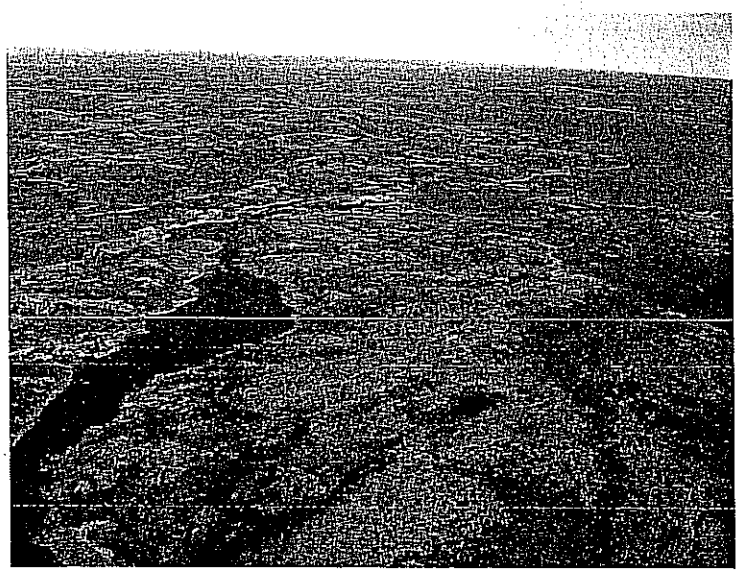
**One of the banding crews consisted of (left to right) Rob Hossler (Biologist from the Delaware Division of Fish and Wildlife), Chuck Brown (OMNR Engineer), Gord Bain (OMNR Pilot), and Kelly Kubik, author and Connecticut Wildlife Division Technician.**

K. KUBIK, MIGRATORY BIRD PROGRAM (3)

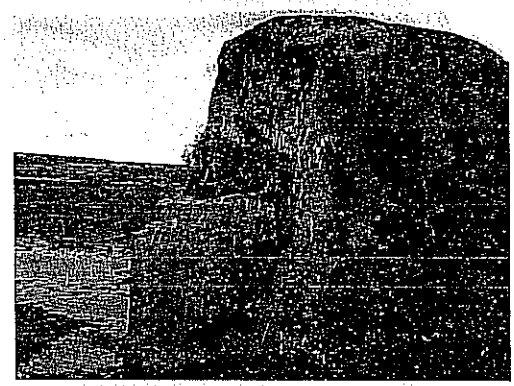
**An A-Star B2 helicopter was used to local, corral, and drive molting geese into a portable net. The net was carried in a container attached to a skid on the helicopter.**

surements were taken on approximately 10% of the geese that were caught. These measurements allowed us to differentiate between other subspecies of Canada geese that were encountered.

Our camp banded 2,398 geese, which included 1,015 adults and 1,383 goslings. Eighty-one previously banded adults also were recaptured. The two groups conducted banding between August 6 and August 14, 2010. We made 84 catches with an average capture size of 30 geese. All of the captures occurred in an area that ranged approximately 115 miles north to south along the northern Hudson Bay coast and extended 25 miles inland. Collectively, the banding operations along Hudson Bay and Ungava Bay banded a total of 4,594 AP geese this past year. Overall, productivity of AP geese in 2010 was classified as moderate to good.



**The topography of the study area in northern Quebec consists of numerous ponds, lakes, rivers, and rocky outcroppings intermixed among the tundra.**



**A nesting rough-legged hawk was one of the many wildlife species we observed while working in this area.**

*Kelly Kubik is a wildlife technician for the Wildlife Division's Migratory Gamebird Program. The Atlantic Flyway Council, through the existing Cooperative Canada Goose Project, provided the funding for Kelly to travel to Canada to assist with this project.*

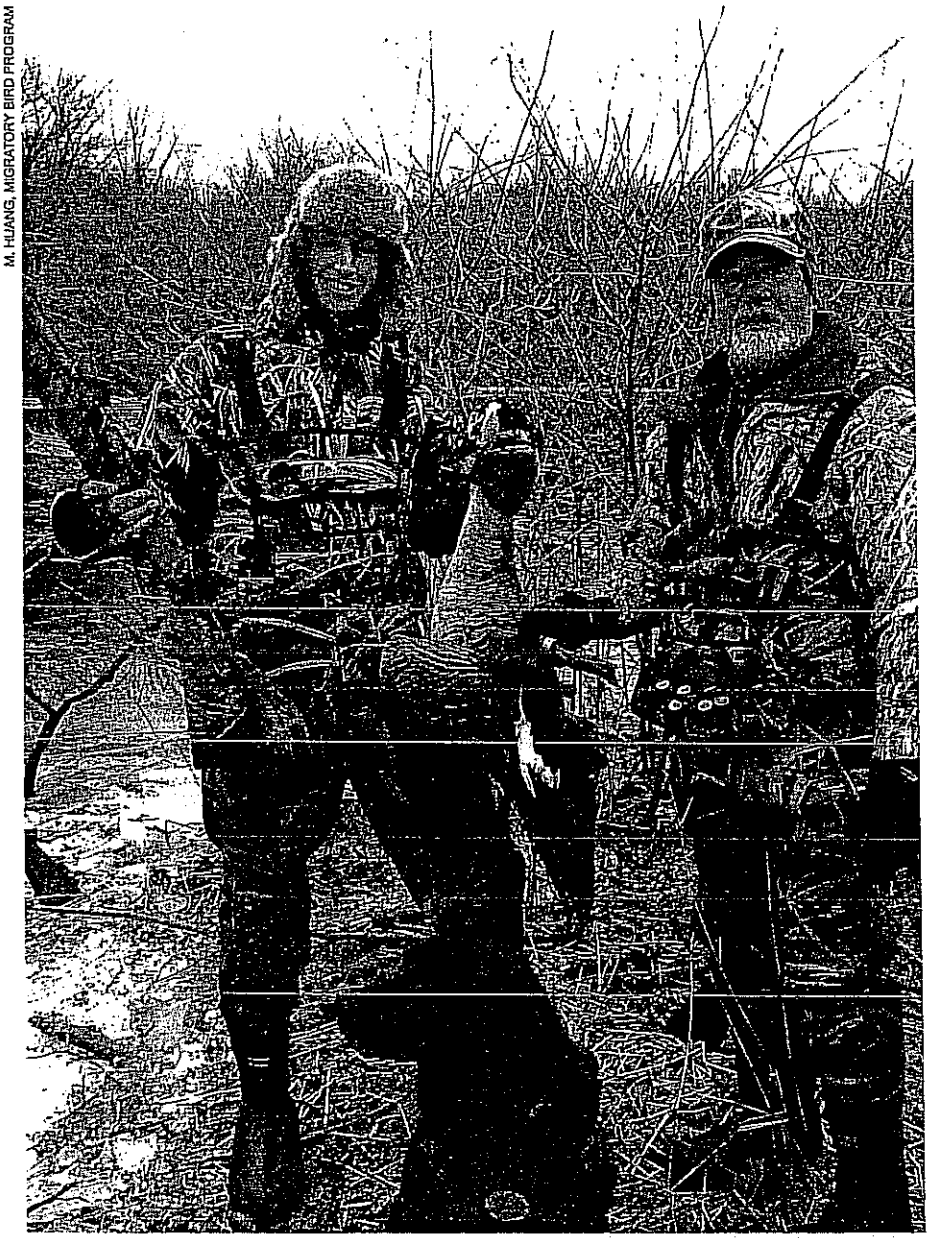
# Waterfowl Hunters in CT, an Aging and Declining Population

*Written by Min T. Huang*

Participation in waterfowl hunting in Connecticut and throughout North America has been declining since the 1980s. The reasons for this decline are varied, including low duck populations in the 1980s, steel shot requirements enacted in the late 1980s, closure of the Canada goose seasons in the Atlantic Flyway in the mid-1990s, and a general loss of interest. Changes in society, lack of leisure time, and a changing population demographic also are likely causes. The gradual decline in the number of waterfowl hunters is not unique. Participation in hunting, in general, is declining.

Increasing recruitment and retention of waterfowl hunters in Connecticut, for the short and long-term, is crucial as waterfowlers are the single most ardent supporters of wetland habitat conservation. Waterfowl hunters constitute a small percentage of total hunters in Connecticut, but their contributions to conservation programs are significant. The sale of annual Connecticut Duck Stamps to waterfowl hunters has provided over one million dollars that have been used exclusively for the acquisition, enhancement, and restoration of over 1,700 acres of inland and tidal wetlands since 1993. Many of these hunters also belong to nonprofit waterfowl organizations that annually raise funds to benefit not only waterfowl but all wetland dependent wildlife. Developing meaningful strategies for recruiting and retaining waterfowl hunters requires looking at a broad array of factors that affect participation.

M. HUANG, MIGRATORY BIRD PROGRAM



Retired Wildlife Division Assistant Director Greg Chasko (right) is an avid waterfowl hunter and former head of the Division's Waterfowl Program. He has made an effort throughout the years to mentor younger hunters interested in gaining the skills necessary to become a "waterfowler."

## *Assessing Waterfowl Hunters*

Starting in 2004, the Wildlife Division has sent two comprehensive surveys to over 1,000 waterfowl hunters. Objectives were to assess the demographics of waterfowl hunters in Connecticut but, most importantly, to gauge levels of participation, motivations for hunting, and satisfactions derived from participation.

It is clear that Connecticut's waterfowl hunter population is aging. The average age of a waterfowl hunter in the state is approximately 46, with over 20 years of waterfowl hunting experience. Annual participation is high, averaging around 85%. However, despite hunting seasons that have become more liberal in recent years, the number of days spent waterfowl hunting is decreasing. This decline can be attributed to changes in other commitments, decreasing access to hunting spots, and using limited recreational time to hunt other species, such as deer. Hunters that reported not participating in the past one or two seasons cited the same reasons as active hunters for spending fewer days hunting. At least 26% of "dropout hunters" cited lack of access to hunting areas as the overriding reason for not participating. Twenty percent cited other commitments as keeping them from waterfowl hunting, and 18% said that they hunted other species instead of waterfowl with their limited time.

## *Participation in Hunting*

The factors that motivate hunters to participate in the activity and the satisfactions they derive from participating also can provide meaningful insight into how to maintain and recruit hunters. Spending time outdoors with family and friends has the greatest influence on participation by

active waterfowl hunters. This is in stark contrast to the motivations of hunters that reported not hunting in the past year or two. Those "dropout" hunters were more motivated by the desire to harvest ducks than any other factor.


P. J. FUSCO

Despite hunting seasons that have become more liberal in recent years, such as the resident goose season, a recent Wildlife Division survey found that waterfowl hunters are spending less time hunting waterfowl.

## *Satisfaction from Hunting*

The factors that governed the satisfaction derived from a given hunt also were different between active participants and non-participants. Most participants gained satisfaction from a hunting experience through spending time outdoors with family and friends, working with hunting dogs, and seeing wildlife in general, ducks in particular. "Dropout" hunters were more inclined to derive satisfaction from taking a lot of shots on a hunt or harvesting a given number of ducks. Seeing wildlife and just being outdoors did not resonate as much with this group as it did for the hunters who participated annually.

## *Differences Between Active and "Dropout" Hunters*

The differences in expression between active hunters and "dropout" hunters shed some light on why those who are dropping out may not continue to pursue duck hunting. Previous studies have found that hunters that pursued their sport for achievement-related reasons were more likely to drop out than those that were motivated by appreciative-related reasons. Motivations for non-participants in Connecticut to hunt ducks were less appreciative-related than for those who did participate. Non-participants were not as motivated to hunt for reasons such as merely spending time outdoors, nor were they inclined to list spending time with friends or family as highly as participants.

These motivational preferences were further exemplified in the factors that each group identified as important toward their overall satisfaction. Non-participants were more likely to derive their satisfaction from harvest-related factors than were participants. For instance, firing a lot of shots (achievement-related) on a given duck hunting trip was a greater determinant of satisfaction for non-participants. Appreciative-related satisfactions, such as working with a hunting dog and honing one's individual hunting skills, also were not as important to non-participants as they were for participants. These differences point to the need to foster an identity in potential duck hunters. Hunters going into the field to experience more than just the harvest are more likely to remain hunters and conservationists for life, rather than transients.

## *Mentoring Is Crucial*

Duck hunting is a specialized sport; it involves a great investment in time, equipment, and skill. Recruitment may be difficult if hunting access to some areas is not easy, initial experiences are not characterized by high satisfaction, and there is a lack of parental/mentor influence. One of the tools that has been touted as a way to introduce new hunters to the sport has been the establishment of Youth Waterfowl Hunter Training days by the U.S. Fish and Wildlife Service. Unfortunately, only 5% of hunters have been mentored during a youth hunt day and only 15% of hunters have mentored a youth at one of these special days. Numerous studies have indicated that participation in hunting, particularly a specialized segment such as waterfowl hunting, takes a great deal of mentoring. An overwhelming 91% of hunters said that they were mentored in becoming a waterfowl hunter by a parent, relative, or close friend.

## *How to Increase Participation?*

The reasons for participation and dropout of waterfowl hunters are numerous and their interactions complex. It is clear, however, that longtime waterfowl hunters continue to hunt waterfowl for many reasons other than merely harvesting ducks. There is an appreciation for being in a marsh with a dog and friends that is borne over many experiences and years of trial and error. Given the way that new waterfowl hunters are brought into the fold (mentoring), it is critical that waterfowl hunters give back to the sport in more than just financial ways.

The factors identified by hunters as deterring participation, such as lack of access, are issues that are difficult but not impossible to address by state agencies. Concerted efforts to increase access and potentially create more permit-only areas are merely a matter of resource allocation and diligence. More importantly, perhaps, is developing ways to foster a greater appreciation for the totality of experiences that is waterfowl hunting in new and perspective waterfowl hunters, not just the shooting and harvesting aspect.

From a conservation standpoint, it also is apparent that hunters who are annual participants were more likely to be a member of Ducks Unlimited or some other conservation organization. Many dropout hunters reported not being a member of such an organization or had recently suspended membership. The focus should not only be on how to recruit new waterfowl hunters, but also on maintaining those that already participate and fostering more mentoring from existing participants. This might be the key to maintaining the waterfowl tradition.

*Min Huang is the leader of the Wildlife Division's Migratory Gamebird Program*

# FROM THE FIELD

## *Fees and Credits for Fishing and Hunting Licenses, Permits, and Tags*

Legislation was approved and signed into law in April during the 2010 session of the Connecticut General Assembly reducing many of the fees for sportsmen's licenses and permits. This was followed in June by legislation authorizing a credit to be applied against the fee for any 2011 sportsmen's license, permit, or tag when purchase of a license, permit, or tag had been made at the higher prices in place between October 1, 2009, and April 14, 2010. The credit amount will be the difference between the higher amount paid during that time period and the amount set by the new fee structure established on April 14, 2010.

Credit redemption is not available from town clerks, retail vendors, or through DEP's Online Sportsmen Licensing System. You must purchase your 2011 license, permit, or tag by mail or in person at one of the following DEP facilities to obtain a credit (2011 licenses/permits/tags will be available starting December 1, 2010):

- **Marine Headquarters**, 333 Ferry Road, Old Lyme; 860-434-6043; Mon.-Fri. 8:00 AM-4:00 PM,
- **Eastern District Headquarters**, 209 Hebron Road (Route 66), Marlborough; 860-295-9523; Mon.-Fri. 8:30 AM-4:00 PM
- **Western District Headquarters**, 230 Plymouth Road, Harwinton, 860-485-0226; Mon.-Fri. 8:30 AM-4:00 PM
- **Franklin WMA**, 391 Route 32, Franklin, 860-642-7239; Mon.-Fri. 8:30 AM-4:00 PM
- **Sessions Woods WMA**, 341 Milford Street (Route 69), Burlington, 860-675-8130; Mon.-Fri. 8:30 AM-4:00 PM
- **DEP Main Office**, 79 Elm St, Hartford, **License & Revenue Office**, 860-424-3105; Mon-Fri 9:00 AM-4:00 PM and the **DEP Store**, 860-424-3555; Mon.-Fri. 9:00 AM-3:30 PM

**Mail-in Option:** A form to purchase your license, permit, or tags by mail when redeeming a credit will be available on-line at www.ct.gov/dep/sportsmensfeereduction after December 1, 2010.

*To see a running tally of the 2010 archery deer harvest, go to www.ct.gov/dep/hunting and click on "2010 Archery Deer Harvest Update."*

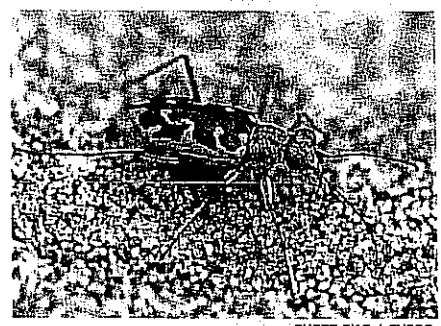


PHOTO BY P. J. FUSCO

## *Puritan Tiger Beetle Update*

The 20th year of adult Puritan tiger beetle surveys at current and historic sites was completed in 2010. The Puritan tiger beetle is a federally threatened and state endangered species. It only occurs in New England on sandy beaches along the Connecticut River and in Maryland along the shores of the Chesapeake Bay. This handsome beetle has a two-year life cycle, spending one year as a grub-like larva feeding until emerging the next summer as a mature adult to mate and lay eggs.

Puritan tiger beetle larvae are fascinating in their own right. After a tiger beetle egg hatches, the larva digs a burrow to live in for the next year. The larva is specialized to live inside this burrow and is not often seen outside of it. It will sit in the burrow and wait for a prey item, often a spider or ant, to get close to the entrance, and then it will pop out and grab its meal. The larva has recurved spines on its back to anchor it into the burrow and keep it from getting pulled out by prey during an ambush.

The Puritan tiger beetle, like many other species, seemed to be affected by the unusually warm weather experienced this past spring, and emerged about two weeks earlier than in past years. Peak numbers of adult beetles were observed during the third week of June in 2010. Peak numbers typically are observed in the first or second week of July.

Overall, since surveys began 20 years ago, the number of adult beetles observed at Connecticut sites has either increased or remained stable. This is good news, but there still is much work to be done. Habitat management is needed at a few sites and the search continues for new locations as sandy beaches are often ephemeral due to the scouring and deposition processes of a river system. These small victories are to be savored though, as there are many hurdles and chronic issues that plague endangered species recovery.

*Section 6 of the federal Endangered Species Act has provided funding for the Puritan Tiger Beetle Project.*

*Laura Saucier, Wildlife Diversity Program*

## *Shelter for Bluebirds*

The Wildlife Division is offering bundles of rough-cut lumber to groups free-of-charge for building bluebird nest boxes. The wood can be reserved by **organized groups only** on a "first come, first serve" basis beginning November 1, 2010. Group leaders should contact Wildlife Division technician Geoffrey Krukar at 860-675-8130 (Mon.-Fri., 8:30 AM-4:00 PM) or send an E-mail to Geoffrey.Krukar@ct.gov to make a reservation. Requesters must provide the following information: contact name, group name, mailing address, daytime phone number, E-mail address (if available), and number of bundles requested (limit 3 per group). Fifty bundles will be available by January 2011. Each bundle of wood yields approximately 15-20 nest boxes. The lumber consists of planks, and all groups will be responsible for cutting the wood to the correct dimensions. Only one request per group will be accepted, and participants will be mailed information packets which contain box designs and instructions, directions to a pick-up location, and claim tickets. When notified, groups will be responsible for picking up their wood at either Sessions Woods Wildlife Management Area, located at 341 Milford Street (Route 69) in Burlington, or at DEP Eastern District Headquarters, located at 209 Hebron Road (Route 66) in Marlborough.

Participating groups will be expected to construct, erect, and monitor the bluebird boxes throughout the nesting season (March-July). To be eligible to participate in future years, an annual report of box usage must be sent to the Wildlife Division.

## *Restoration Project at Long Beach West*

A ceremony was held in late September 2010 to break ground for a project to restore Long Beach West, in Stratford, one of Connecticut's longest stretches of barrier beach. The project, supported by nearly $1 million in American Recovery and Reinvestment Act stimulus funding, involves demolishing the dilapidated remnants of a former summer community, removing debris and contaminants, and ultimately re-establishing 35-acres of beach to its natural state for people and wildlife.

U.S. Congresswoman Rosa DeLauro joined officials from the U. S. Fish and Wildlife Service and numerous project partners for the ground breaking ceremony at the project site.

The restored beach, which has been designated as an internationally significant area by the National Audubon Society, will provide critical habitat for migratory birds, including the state and federally threatened piping plover and state-threatened least tern; rare plants; and other wildlife. Passive public access to the beach also will be restored.

# Raccoon

*Procyon lotor*

PHOTO BY P. J. FUSCO

## Background

Raccoons are common throughout Connecticut. The state's expanding human population has probably benefited this opportunistic species; concentrations of people provide easy access to food sources, such as garbage, gardens, and bird feeders. Raccoons are adaptable, thriving in a large variety of habitat types. They are abundant in urban, suburban, and rural areas.

The raccoon has been an economically important furbearer in Connecticut due to its abundance and pelt value. Raccoons are harvested each year during the regulated hunting and trapping seasons, providing recreation for many Connecticut sportsmen and helping to control local raccoon populations.

## Range

Raccoons range from Canada and throughout the United States (excluding the high elevations of the Rocky Mountains and much of the Southwest) into Mexico and Central America.

## Description

One of the most easily recognized furbearers, the medium-sized raccoon is distinguished by a black mask across the eyes and cheeks and black rings around the bushy tail. Long, thick fur gives raccoons a typical gray-brown color, with variations ranging from sienna to silver. Other characteristics include short, slightly rounded ears bordered by white fur, and a long, pointed snout. Most adults weigh between 10 and 20 pounds, with males typically larger than females. Raccoons range in length from 23 to 38 inches, including the tail.

## Habitat and Diet

Raccoons prefer wooded areas near streams, ponds, and marshes but are highly adaptable and can live in agricultural areas and in close proximity to human developments. They make their dens in tree cavities, abandoned woodchuck or fox burrows, rock crevices, brush piles, chimneys, attics, sheds, and other structures.

Opportunistic and omnivorous, the raccoon has a varied diet that includes fleshy fruits, mast (especially acorns, hickory nuts, and beechnuts), grains, invertebrates (particularly crayfish and insects), rodents, young rabbits, birds, turtles and their eggs, fish, and carrion. Raccoons are known for raiding garbage, agricultural crops, chicken coops, and pet food left outdoors.

## Life History

Raccoons breed in late winter or early spring. The male does not remain with the female after breeding. The young are born in April or May after a 63-day gestation period. Females produce one litter per year, with an average of four cubs per litter. The cubs are born blind, helpless, and are covered with yellowish-gray fur. After 30 to 40 days, the cubs leave the den and will travel with the female for short distances to search for food. At three to four months, the cubs begin to forage on their own.

## Interesting Facts

Raccoons are most closely related to the weasel (Mustelidae) and bear (Ursidae) families. They have keen senses of hearing, sight, and touch, but taste and smell are less well developed.

The front and hind paws of raccoons have five digits each. The dexterous front paws enable the raccoon to grasp and manipulate food items. Raccoons are excellent climbers, and can descend a tree head first.

Raccoons are primarily crepuscular (active at dawn and dusk) and nocturnal (active at night). They occasionally venture out in daytime, but that does not mean that they are diseased. Raccoons often adjust their feeding schedules, especially in spring when rearing their young. They may "den up" during the coldest periods in late fall and winter; however, this is not true hibernation, and the animals will wander out during warm spells.

Generally, raccoons are not social, but some pairs and families travel together.

Raccoons, especially large populations, prey on birds and their nests. In Connecticut, they often raid bluebird nest boxes that are not protected with predator guards. They also are problematic for herons and egrets on offshore islands where repeated predation can cause abandonment of the entire colony.

## Diseases

**Raccoon Rabies:** Raccoon rabies first appeared in Connecticut in 1991 and raccoons are the primary carriers of this virus in the northeastern United States. Other mammals, including dogs, cats, skunks, foxes, woodchucks, and livestock, also have been infected with rabies. The following symptoms may indicate an

infection from rabies, distemper, or other diseases: unprovoked aggression, impaired movement, paralysis or lack of coordination, unusually friendly behavior, and disorientation. Daytime activity alone is not indicative of a raccoon with rabies; other symptoms also must be obvious. Contact with any wild or stray animal should be avoided, especially if it is behaving abnormally. Report sick or strange-acting animals to the local police, animal control officer, or the DEP. Contact your local health department or visit the DEP Web site (www.ct.gov/dep/wildlife) for more information on rabies.

**Canine Distemper:** Other diseases, such as canine distemper, can cause neurological symptoms similar to rabies. Distemper is a common disease that is usually fatal. However, it is not transmissible to humans and most domestic dogs are vaccinated against this virus.

**Roundworm:** Raccoons are primary carriers of roundworm, which is shed in raccoon feces. The roundworm rarely causes problems for raccoons, but it can be dangerous to other mammals, including humans. A person can become infected if he or she comes into contact with an item that is contaminated with raccoon feces. Therefore, it is important to keep children's sandboxes covered as raccoons may use them as latrine sites.

## Management of Problems

Because of their ability to coexist with humans, raccoons can become a nuisance when they damage gardens, raid garbage cans, or inhabit human structures. They can be especially destructive on farms, where they feed heavily on crops. Because they may carry rabies, problem raccoons cannot be relocated, and only specified wildlife rehabilitators can accept injured or orphaned raccoons for rehabilitation with certain restrictions.

There are several preventive measures that homeowners can take to control or reduce problems from raccoons:

**Do Not Feed or Touch Raccoons:** Raccoons are wild animals. Feeding, whether directly or indirectly, may cause them to lose their fear of people.

**Secure Garbage:** Keep garbage in tightly closed containers. Store containers in an outdoor storage bin or in a garage or shed, and set out garbage on the morning of pickup instead of the night before. Run a rubber strap, rope, or wire through the lid and attach to the can handles. Placing ammonia directly in the can may help to repel raccoons. Keep compost in secure, vented containers to prevent access.

**Feed Pets Indoors:** Pet food should not be put out outside. Outdoor pet food inadvertently feeds a variety of wildlife species, including raccoons. Raccoons that congregate at a feeder also can facilitate the spread of diseases from raccoons to other wildlife or domestic animals. Livestock food should be stored in secure containers and not left outside where it is available to raccoons. Bird feeders should be placed away from trees or other structures that can be climbed by raccoons.

**Eliminate Potential Denning Areas:** Close off openings under porches and buildings. Seal any openings that lead into sheds or attics.

**Eliminate Access Points:** Raccoons can easily access roofs by climbing trees, downspouts, vines, or a trellis located near the house. Roofs and chimneys should be well-maintained to prevent raccoons from entering houses. Replace loose shingles and repair any holes near the eaves of the roof. Limiting access to the roof by trimming trees and shrubs also may be helpful.

The simplest and most effective, permanent solution to the problem of raccoons living in a chimney is to cap it. However, there may be young present, depending on the time of year. If the young are old enough to climb out, cap the chimney after the raccoons have left for the night. Sometimes, a female raccoon can be encouraged to move her young to another location by the use of repellents, such as ammonia or moth balls, combined with a light and noise from a portable radio placed near the damper.

**Install Fencing:** Electric fences may help to keep raccoons out of gardens. Wires must be spaced close together and close to the ground to be effective.

**Hunting and Trapping:** On farms, where more effective methods are needed to control a large number of animals, hunters and trappers can harvest problem animals on the property during the regulated hunting and trapping seasons or by special permit at other times of the year.

P. J. FUSCO

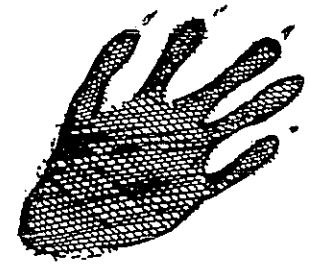
**Because of their ability to coexist with humans, raccoons can become a nuisance when they raid garbage cans, damage gardens, and inhabit human structures.**

## Tracks

Front 2¼" Long

Hind 3¼" Long

**Raccoon tracks are easily identified by the five long toes on each foot. The front foot is shaped somewhat similar to a human hand. Tracks are usually paired, with the front and hind tracks positioned next to each other as the animal walks along.**



# Wildlife Calendar Reminders

## *Programs at the Sessions Woods Conservation Education Center*

*Programs are a cooperative venture between the Wildlife Division and the Friends of Sessions Woods. Please pre-register by calling 860-675-8130 (Mon.-Fri., 8:30 AM-4:30 PM). Programs are free unless noted. An adult must accompany children under 12 years old. No pets allowed! Sessions Woods is located at 341 Milford St. (Route 69) in Burlington.*

Dec. 11 ..... **Children's Program: Wildlife Tracks & Signs,** starting at 1:30 PM. Learn about wildlife tracks indoors with Natural Resource Educator Laura Rogers-Castro and then head outside for a short walk to look for animal signs. Children also will make a wildlife track to take home. An adult must accompany all children. Meet in the exhibit area of the Conservation Education Center.

Jan. 9 ..... **12 Practical Tips for Successful Wildlife Photography,** starting at 1:30 PM in the education center. Wildlife photographer and Master Wildlife Conservationist Gary Melnysyn will provide participants with 12 tips to successful wildlife images. Gary's beautiful images will support a discussion on each tip. This will be an open forum that encourages questions about photo techniques or the wildlife itself. Gary recently returned to Connecticut after working as a National Park Service Ranger in Yellowstone National Park. He has travelled throughout North and Central America concentrating on digitally documenting a variety of wildlife species.

## *Hunting Season Dates*

Sept. 15-Dec. 31 ..... Deer and turkey bowhunting season on private land (private land bowhunters in deer management zones 11 & 12 may hunt deer until January 31, 2011).

Nov. 17-Dec. 7 ..... Private land shotgun/rifle and revolver deer hunting seasons.

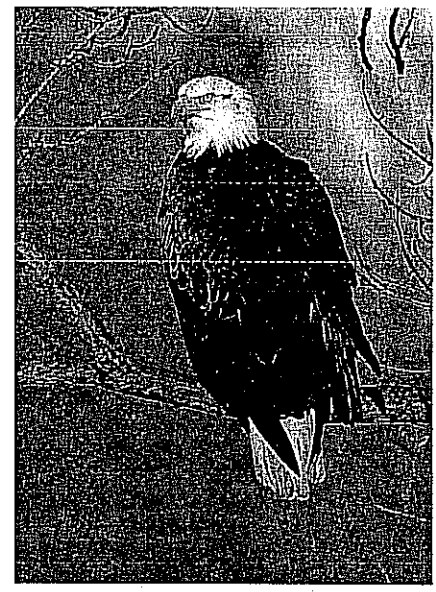
## *Shepaug Bald Eagle Observation Area to Open on December 26*

*The Shepaug Bald Eagle Observation Area, in Southbury, opens for its 26th season on December 26, 2010. The Observation Area is run by FirstLight Power Resources, a GDF SUEZ Energy North America company, which owns and operates several hydroelectric facilities along the Housatonic River.*

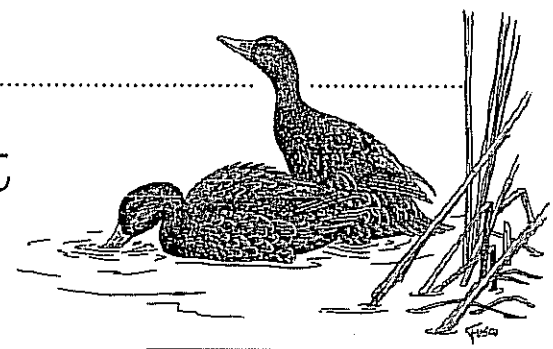
*Observation times are Wednesdays, Saturdays, and Sundays between 9:00 AM and 1:00 PM from Sunday, December 26, 2010, through Wednesday, March 16, 2011. Although admission is free-of-charge, advance reservations are required and will be taken beginning on Tuesday, December 7. To make reservations for individuals, families, and groups, call toll-free at 1-800-368-8954 between 9:00 AM and 3:00 PM on Tuesdays through Fridays.*

*The Shepaug Observation Area is one of the top eagle viewing areas in New England. It is a popular spot for eagles in winter when the turbulence below the dam keeps the water from freezing, and the fish below the dam provide a ready food source. Local experts report an average of eight eagles feeding per day. Other birds seen at the area include red-tail hawks, sharp-shinned hawks, goshawks, great blue herons, and a variety of waterfowl.*

*Specialists will be on site with high-powered telescopes to help visitors see the eagles in action and to answer questions about America's national symbol. Visitors are encouraged to dress warmly because the observation area is unheated and to bring binoculars, if possible, given the limited number of on-site telescopes.*




*The 2010 Connecticut Hunting and Trapping Guide and 2010-2011 Migratory Bird Hunting Guide are on the DEP Web site (www.ct.gov/dep/hunting), and also at town halls, DEP facilities, bait and tackle shops, and outdoor equipment stores. Go to www.ct.gov/dep/sportsmenlicensing to purchase Connecticut hunting, trapping, and fishing licenses, as well as all required deer, turkey, and migratory bird permits and stamps. The system accepts payment by VISA or MasterCard.*



# Connecticut Wildlife

## Subscription Order

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*Help fund projects that benefit songbirds, threatened and endangered species, reptiles, amphibians, bats, and other wildlife species.*

# Connecticut Wildlife

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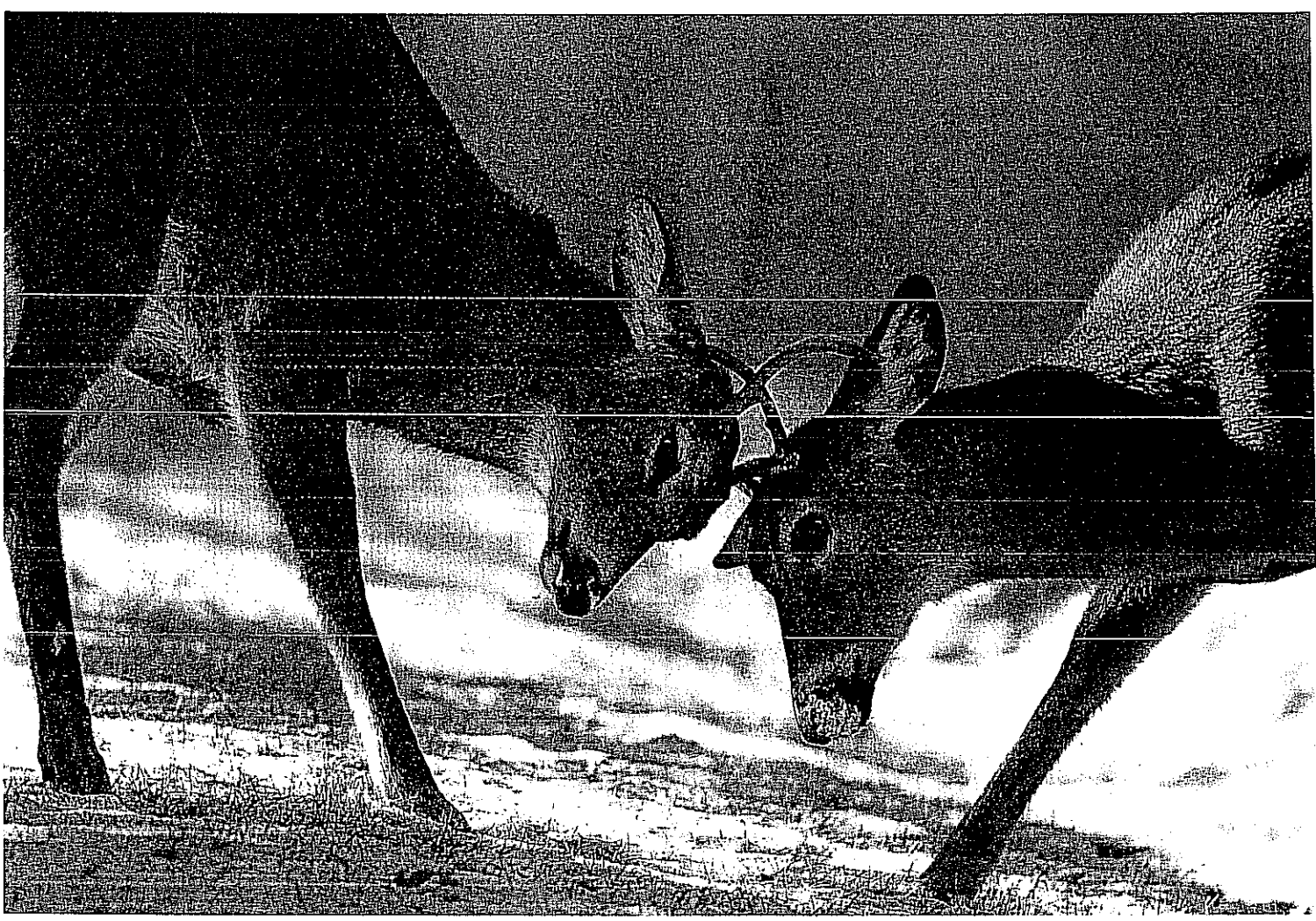

Two young bucks square off in a battle to practice the skills they will need in later years when the confrontations will be much more serious.