STORMWATER MANAGEMENT PLAN
2010 ANNUAL REPORT

CITY of MERIDEN
Meriden, Connecticut

December 2010

FUSS & O'NEILL
Disciplines to Deliver

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Project No. 2002294.A19

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1 Introduction

On December 8, 1999, the U.S. Environmental Protection Agency (USEPA) promulgated Phase II of its National Pollution Discharge Elimination System (NPDES) stormwater regulations. Phase I of the USEPA stormwater program established regulations for stormwater discharges from municipal separate storm sewer systems (MS4s) in municipalities with populations of 100,000 or greater, construction activities disturbing five or more acres of land, and ten categories of industrial facilities. The Phase II Final Rule expandedhe Phase I program by requiring smaller communities with MS4s in urbanized areas to implement programs and practices to control polluted stormwater runoff through the use of NPDES permits.

The City of Meriden is one of 130 municipalities in Connecticut that are located either completely or partially within an urbanized area. These communities were mandated to seek permit coverage with the Connecticut Department of Environmental Protection's (CT DEP's) Phase II Stormwater Program. CT DEP issued the final *General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems* (General Permit) on January 9, 2004.

Compliance with the MS4 permit was a two-part process. The first part (Part A – General Permit Registration) was the submission of a registration form including primarily administrative information and basic mapping. The CT DEP issued the City of Meriden a General Permit for Stormwater – Small Municipal Separate Storm Sewer Systems (#GSM000038) on April 13, 2004. A copy of the permit is included as *Appendix A*. The second part of the process is the submission of a Stormwater Management Plan (SWMP) which was received by the CT DEP on July 8, 2004. The SWMP addresses how the City will comply with the six minimum control measures required by the NPDES permit. These six minimum measures include:

1. Public Education and Outreach
2. Public Participation/Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post-Construction Runoff Control
6. Good Housekeeping/Pollution Prevention

As required by the MS4 General Permit, this Annual Report for calendar year 2010 (year 7 of the permit) outlines the City's compliance with the permit, provides an assessment of the appropriateness of the identified best management practices and the City's progress towards achieving the implementation of each minimum control measure, provides copies of monitoring data which may have been collected and analyzed, summarizes stormwater activities the City plans to undertake during the next reporting cycle, and outlines any change in identified measurable goals, implementation dates, or other changes.

The General Permit expired on January 8, 2009. Instead of issuing a new General Permit, CT DEP reissued the existing general permit without modification. As such, Meriden will continue to implement its stormwater management program following the SWMP that was prepared in 2004 and the requirements of the reissued 2004 General Permit. The reissued General Permit expires on January 8, 2011 (unless otherwise modified).

1.1 Total Maximum Daily Load

CT DEP prepared and finalized a Total Maximum Daily Load (TMDL) for the Quinnipiac River Regional Basin on June 8, 2008. The TMDL is required since water bodies in this watershed, including Harbor Brook, Misery Brook, Quinnipiac River, and Sodom Brook, have exceeded the allowable levels of bacteria based on their designated uses. As required by the Clean Water Act, a TMDL presents the maximum quantity of pollutant that can be discharged while still meeting water quality standards, or in the case of this TMDL, the presented values are the required reductions in bacteria discharges that must be met. TMDLs are required to be implemented through Phase II Stormwater Management Plans.

On behalf of the City, Fuss & O'Neill submitted comments on the TMDL to CT DEP during the statutory comment period.

2 Public Education and Outreach

2.1 Education to the Public

Development and disbursement of stormwater-related educational materials is a continuous process undertaken by the City of Meriden. To date, the City, in partnership with other governmental agencies, businesses, concerned citizens and non-profit organizations such as the Quinnipiac River Watershed Association (QRWA), has extended its public education and outreach efforts to include:

1. Brochures on environmental topics protecting stormwater such as:

    - Bristol Resource Recovery Facility Operating Committee and Tunxis Recycling Operating Committee, *Household Hazardous Product Disposal Information,* and *Recycling Guide* (both in English and Spanish languages).
    - CT DEP, *Composting Has A-Peal*
    - Meriden Department of Health & Human Services, *Storm Drain: Where Does the Water Go?*
    - Quinnipiac River Watershed Association made several informational documents describing stream quality and benthic organisms, pesticides, riparian health, and other subjects. Documents include *Stream Biosurveys, Environmental Risks of Pesticides in a Residential Setting, What Good are Streamside Woods?, Muddy Waters,* and *Thickets and Edges, The Abridged Greenway Landowners' Guide to the Quinnipiac River & its Tributaries: A primer for the care of the Quinnipiac Greenway rivers and streams* (to date over 4,200 have been distributed including at the 2010 Meriden Daffodil Festival).

2. The QRWA website has updates listed such as the one added on March 10, 2010 regarding eagles at Hanover Pond. Their reemergence on the Quinnipiac River proves the river's substantial food source, which is a result of cleaner water.

3. Newsletters to raise public awareness such as:

   - Meriden Department of Health Semi-Annual Newsletter – "Food For Thought" (See *Appendix B*). For example, the August 2009 newsletter included an article on the proper operation and maintenance of indoor and outdoor grease traps.

   - Meriden's Water Division Annual Water Quality Report. Although drinking water is the primary focus, sections of the flyer describe how humans affect the quality of water and water conservation tips. See *Appendix B* for an example of this report, the 2009 Report (distributed in 2010).

4. Articles in the local newspaper, included but were not limited to those related to the City's plan to preserve more than a 100 acres of land on South Mountain Road as a permanent conservation area, QRWA's Annual Canoe Race, the launch of the City's anti-littering campaign, QRWA's fight against a proposed stream flow regulation, a local residents efforts to clean up Hubbard Park, and QRWA's fish stocking day. See *Appendix B* for these and other newspaper articles.

5. Monthly City Meetings (including Conservation Commission, Inland Wetlands Watercourse Commission, Meriden Linear Trails Committee, Flood Control Implementation Agency, and Public Works and Parks & Recreation Committee), many of which pertain to environmental protection and preservation, stormwater, and flood control and allow for monthly public comment on the City's activities and programs.

6. The City of Meriden received the recently published Connecticut Department of Education (CTDOE) *Core Science Curriculum Framework*. This curriculum includes educational units discussing "Land and Water Interactions," "Water Quality," the shaping effects of water, how water moving across and through the earth carries with it the products of human activities, how humans can improve water quality, and the accumulation of mercury, phosphates and nitrates in river, lakes, and oceans and its effects on water quality.

7. The City Department of Health and Human Services continued a Fats, Oils, & Grease (FOG) educational campaign in 2010 wherein the City reaches out to restaurants and requires updating grease trap units within 60 to 90 days following a change in ownership. An educational letter regarding FOG was included with a 2010 water and sewer bill and distributed to 18,000 customers.

8. The City has acquired 7,000 storm drain markers to be applied to its catch basins. The markers, which are being installed by the Department of Public Works, inform residents that storm drains discharge to local waters without treatment.Markers are currently placed on all newly installed catch basins. In 2010, 40 markers were installed by City staff.

9. In 2010, the Meriden Land Trust completed the drafting of four color hiking trail maps for the City (Higby/Beseck Hiking Trails, Giuffridda Park Hiking Trails, Hubbard Park Hiking Trails, and Hanover Pond Hiking Trails). These maps are available on the Land Trust website and at City Hall.

10. There was an extensive educational campaign conducted in 2010 focusing on the wastewater treatment plant upgrades taking place in the City. This campaign included a one month period when a public service announcement video was played daily on the local cable access channel. It is currently available for viewing at the City's Water Pollution Control Division's webpage.

Copies of selected materials available in 2010 are included in *Appendix B.*

2.2 Education Materials Distributed

The brochures and newsletters outlined in *Section 2.1* have been distributed to citizens in Meriden. The *Household Hazardous Product Disposal Information, Recycling Guide* (both in English and Spanish languages), *Composting Has A-Peal,* Transfer Station and Meriden Landfill information are available at the Department of Public Works administrative offices.

The 2008-2009 Stormwater Annual Report was made available to the public for review. No requests to view the report were received. The 2010 report will be made available for public review prior to submission to CT DEP.

2.3 Workshops/Meetings Attended

A meeting of the Meriden Stormwater Committee including staff members from the Engineering, Planning, Law, and Public Utilities Departments was held on November 17, 2010 to discuss the 2010 annual report and plan for 2011 activities.

2.4 Miscellaneous

In Year 1 of the permit, the stewardship of Dossin Beach was passed to the QRWA from the City. This area will be used for on-land and in-the-water (kayak & canoes) educational classes for primarily school age children. The first phase of the Quinnipiac River Gorge Trail was completed during Years 2 and 3 of the permit. This phase includes a 1.2-mile section of trail along the Quinnipiac River. Phase II of the project was approved by the City Council in November 2010 and construction is planned to begin in 2012. This second phase includes constructing a trail connecting Dossin Beach and Platt High School. This trail will run adjacent to Sodom Brook and include environmental signage. The final outcome of the project will include a trail system throughout the City. Also in 2010, Rep. Christopher S. Murphy, D-5th District, requested earmark monies totaling $600,000 for Phase 3 of the Quinnipiac River Linear Trail.

The QRWA held a Canoe Race and annual clean up along the Quinnipiac River. There were many environmental awareness and educational components of these events.

In 2010, the City continued to support the work of the Southwest Soil & Water Conservation District through a monetary contribution.

2.5 Modifications to Plan

There are no modifications to the public education component of the Stormwater Management Plan under consideration at this time.

2.6 Activities Planned for 2011

The CT DEP MS4 General Permit was reissued (without modification) on January 12, 2009. The City will continue to implement the SWMP according to the requirements of the current general permit. Meriden will implement requirements of the new permit, including modifications to this SWMP as necessary, when it is issued. Activities planned for 2011 include:

- Stormwater-related articles in the Meriden Department of Health newsletter, including those directed at the Food Services industry and cooking oil management.
- Continue to collaborate with the local newspaper in order to publish future environmental articles in the *People's Press* and/or *Record Journal*.
- The City will continue to integrate topics in the recently published *Core Science Curriculum Framework,* including those related to water quality, into its school curriculum.
- Ensure that the Linear Trail program continues. The program includes walking trails and educational resources along the Quinnipiac River and within the Quinnipiac Gorge. The program is being subsidized by Federal funds passing through the City.

3 Public Participation

3.1 Public Meetings Conducted

- *Monthly City Meetings*. Many of these meetings include issues pertaining to stormwater and flood control. Meetings include the Inland Wetlands and Watercourses Commission, Land Trust Committee, and Flood Control Implementation Agency meetings.
- *City Code Walk*. These monthly meetings are performed by various city staff, department heads, and members of the public, who walk inner city neighborhoods and look for areas of improvement (litter, evidence of pollution, maintenance issues, drainage issues etc.). These walks have been performed since 1994. The walks cover 525 acres of the City core via 20 miles of roadway.
- *Meriden Linear Trail Advisory Committee*. Monthly meetings are held to discuss the Linear Trail Project.

3.2 Notices Published

A public notice was issued when this Stormwater Annual Report was made available to the Public. A copy of the Notice is included in *Appendix C*.

3.3 Public Events

The following activities were conducted in Meriden in 2010:

- QRWA Canoe Races and Paddling Outings
- Monthly City Code Walks
- Mayor's Cleanup, one town organized clean up event was held in 2010.
- QRWA Annual River Clean ups – during these annual events a significant quantity of material was been removed from the river. Although specific quantities are not available for 2010, in 2004 approximately 16,000 lbs of material was removed from the watershed by hundreds of volunteers. Efforts were collaborated throughout the watershed, unaffected by City lines. The municipalities in the watershed shared in the cost of the disposal.
- QRWA Fish Stocking – On April 15, 2010, approximately 100 volunteers participated in the stocking of 160 rainbow and brook trout along the Quinnipiac River Gorge Trail. As one Meriden resident stated, "I wanted to teach my daughter about the environment and how the trout get in the water."
- National Trail Days - On June 2nd and 5th, 2010, public outdoor events were held at the Quinnipiac River Linear Trail and Dossin Beach. Partners for the City events were the Meriden Conservation Commission, Meriden Health Department, Meriden Land Trust, Meriden Linear Trails Committee, and QRWA. The partners showcased educational exhibits and plans for trail expansion.

3.4 Public Participation Programs

The following public involvement programs were active in Meriden in 2010:

- QRWA "Friends of the River" Program – QRWA established a program to recognize the businesses and individuals who have committed to implement best management practices (BMPs) to protect the water quality of the Quinnipiac River. To date, over 13 businesses and 64 individual stakeholders (citizens) within Meriden have signed the "Friends of the River" pledge. In addition to approaching commercial businesses directly, the QRWA has approached the Meriden Chamber of Commerce to share information about the program with their members (see *Appendix C* for a copy of the "Friends of the River" pledge and poster).

- QRWA Storm Drain marking – Over 750 drains have been marked within Meriden by volunteers since the inception of the program in 2007. During that time approximately 70 volunteers participated in the drain marking program within QRWA target areas of New Haven, Wallingford and Meriden.
- 'Adopt-a-Park" - Clean up of Hubbard Park. A city resident has been removing trash and debris from Hubbard Park weekly since July 1998 (the last two years was considered part of the City's Conservation Commissions, citizen-based 'Adopt-a-Park" program). The volunteers efforts were reported on in the Record Journal (see *Appendix C*).
- Beat the Street Community Center Community Garden – In 2010 a community garden was developed and planted on the corner of Pratt and East Main Streets. School-aged participants from the South Colony Street center were the main group of volunteers for this effort. The goal of the program is to educate the kids in nutrition, gardening, teamwork and sustainability. Materials for the garden were donated by Country Farms (Middlefield), Kogut's Florist and Garden Center (Meriden), TD Bank, Hampton Inn, and the City donated soil as well as allowing the garden to be placed on City land. Participants meet a couple of times a week from May to October to weed and maintain the plants.
- Members of the Unitarian Universalist Church on Paddock Avenue, have an organic gardening program that includes volunteers from the church – both adult and youth members. The volunteers grow organic fruits and vegetables as part of a broader effort to reduce the church's environmental impact. The organizers hope to expand their program to other churches and people in the community in 2011.
- In 2010, the Mayor announced the initiation of a new program to recognize small businesses with certificates that the owners will be asked to sign as a pledge to keep their sidewalks clean.
- In 2010, the City participated in a compost bin distribution program through the Connecticut Resources Recovery Authority (CRRA). Forty (40) containers were sold to Meriden residents for a subsidized price of $20.
- Clean up of Sodom Brook. A Meriden resident continued in 2010 to conduct clean up activities on the Sodom Brook. The resident pulled trash, debris, and garbage to the banks of the brook.

3.5 Website

The City of Meriden's website has links to the City's stormwater documents (such as the Stormwater Management Plan and Annual Reports), thus all stormwater documents are continuously available for public review. It should be noted that the Quinnipiac River Watershed Association's website (www.qrwa.org) is linked to the City's page. The QRWA website includes watershed information, programs, and other educational items.

3.6 Modifications to Plan

There are no modifications to the public education component of the Stormwater Management Plan under consideration at this time.

3.7 Activities Planned for 2011

The CT DEP MS4 General Permit was reissued (without modification) on January 12, 2009. The City will continue to implement the SWMP according to the requirements of the current general permit. Meriden will implement requirements of the new permit, including modifications to this SWMP as necessary, when it is issued. Activities planned for 2011 include:

- The City will continue to work with the partnership of governmental agencies, businesses, concerned citizens and non-profit organizations such as the QRWA and school system to participate in their environmental work as well as to sponsor and support clean up projects and environmental events.
- In 2011, Linear Trail volunteers and QRWA will work together on the development of environmental education classes at these locations. The program is being subsidized by Federal Funds passing through the City.
- In 2011, the City will provide links to other stormwater resources such as the EPA and CT DEP stormwater websites on the City's website.

4 Illicit Discharge Detection/Elimination

4.1 Illicit Discharge Investigation Activities

The City of Meriden has formalized a process and procedures for logging and responding to complaints associated with illicit discharges. The City has incorporated procedures that include detection information received from the Meriden Department of Health and Human Services and other government and citizen groups and agencies.

Citizens that wish to report illicit discharges call the Mayor's Hotline, which then contacts the appropriate department. The complaints are recorded by the Department of Parks and the Department of Public Works as they are detected and reported.

The information is maintained in the Department of Public Works administrative offices located at 142 East Main Street, Meriden, Connecticut. The information is accessible to the public during normal business hours Monday through Friday. The Department's clerical staff is responsible for accepting and recording public written or telephone complaints for potential illicit discharges. These complaints are referred through the Department of Public Works to field personnel for proper assessment and correction (as necessary).

The Department of Public Works Engineering Services clerical staff also receives and record illicit discharge detection information received from the Mayor's hotline, Department of Health and Human Services, QRWA, and website. This is currently a public bulletin board on the City's website allowing citizens to post questions. These postings are read by MIS staff and directed to the appropriate department. In the case of stormwater questions/concerns, the Department of Public Works would be notified. The questions posted are answered directly on the website so all web visitors have access to the information.

The City has completed mapping stormwater outfalls within the City. As the outfalls are mapped, any discharge present is evaluated to determine if an illicit discharge could be occurring. The form that was used to identify and describe each outfall was submitted in a prior annual report as was a map of the identified outfalls (unchanged in 2010). The City is planning to map the storm drainage piping network to identify the sources of drainage discharged via each outfall.

4.2 Illicit Discharge Removal Activities

Once a suspected illicit discharge has been detected and logged, the Department of Public Works, in conjunction with the Meriden Department of Health and Human Services, Water Pollution Control, or other governmental agencies, as appropriate, will take necessary actions to diagnose and eliminate the discharge as necessary. The actions taken to correct and/or eliminate the illicit discharges are documented and maintained by the Department of Public Works.

The Meriden Department of Health and Human Services received eight (8) sewage-related complaints in 2010; however, many of these complaints were for inside the building problems (e.g., back ups in basements, etc). The Department of Public Works did not find or become informed of any illicit discharges in 2010.

Meriden requires that residents place their leaf waste in paper bags for municipal pick up and disposal thus limiting the amount of organic waste that is deposited in the municipal storm sewer system.

Additionally, two contaminated site cleanup projects are ongoing in Meriden. These include the Factory H cleanup project on Cook Avenue at the southern entrance to Meriden's central business district. The other site, known as the HUB, is located in the center of the City. A reuse plan for this site includes walking trails, flood storage and economic development pads. Late in 2009, the City received additional funds to continue work on the Factory H facility and in 2010 Rep. Christopher S. Murphy, D-5th District requested additional monies totaling $3.2 million for the Factory H cleanup. The City has closed on a property adjacent to the Factory H facility, 116 Cook Avenue (no known environmental issues).

In 2010, upgrades to the City's wastewater treatment plant continued. These upgrades will cost approximately $45 million and will include a pilot program for denitrification. The City hopes to have the upgrades completed in 2011.

In 2010, the City approved the use of $10,000 for the cleanup of contaminated soil at the QRWA Headquarters. QRWA, leaser of the property, had an old underground tank removed from the property and the company that removed the tank found that it had leaked, contaminating the soil around it

4.3 Municipal Litter Removal

In 2010, the City initiated the "Meriden Clean and Green" campaign aimed at instituting cost-effective changes to help control littering. The goals of the campaign are: educating business owners, residents and visitors about the importance of keeping the City clean; maintaining and improving the appearance of neighborhoods; and ensuring that laws regarding trash collection, littering and recycling are enforced.

The City has a 'blight list' and has the ability to hire a contractor to clean up blighted or neglected properties at the expense of the owner, a 'clean and lien'. The City will perform this type of work when the house or property is in a noticeable state of disarray or presents a health or safety issue. When a property is put on the 'blight list,' the owner may receive a fine of $99 a day after 30 days if the owner does not agree to work with the City to clean up their property. This program prevents a significant amount of litter and other debris from polluting stormwater.

4.4 Modifications to Plan

There are no modifications to the Illicit Discharge component of the Stormwater Management Plan under consideration at this time.

4.5 Activities Planned for 2011

The CT DEP MS4 General Permit was reissued (without modification) on January 12, 2009. The City will continue to implement the SWMP according to the requirements of the current general permit. Meriden will implement requirements of the new permit, including modifications to this SWMP as necessary, when it is issued. Activities planned for 2011 include:

- The City will continue to work with the partnership of governmental agencies, businesses, concerned citizens and non-profit organizations such as the QRWA to develop programs to detect and eliminate illicit discharges.
- The Meriden Department of Public Works will continue its efforts with the Meriden Department of Health and Human Services and other City agencies to assess, and improve if necessary, the process and procedures for logging and responding to complaints associated with illicit discharges. The public will primarily continue to use the Mayor's Hotline to make complaints known to City staff.

- Any illicit discharges found will be added to the City's GIS system as they are identified during the normal course of business. In addition to mapping the outfalls, the Outfall Inventory Form will be used to document the condition and characteristics of the outfall.
- The City will continue to plan for the mapping of storm drainage lines to complete a drainage pipe network in GIS if funding for the project becomes available.
- The City's Code and regulations will be reviewed and revised, if necessary, to ensure illicit detection and elimination requirements are being met, that the City has the ability to find and remove illicit discharges, and for necessary changes to comply with the SWMP and the MS4 General Permit.

5 Construction Site Runoff Controls

5.1 Construction Plans Reviewed

The Administrative Development Review Board reviews all construction plans for new construction, redevelopment projects, and/or alterations. During 2010, the Inland Wetlands and Watercourses Commission (IWWC) reviewed eleven (11) applications (9 were of sites over one acre in size and 3 were for projects proposed to disturb more than one acre), and the Planning Commission reviewed 13 site plans and one (1) subdivision application. Review and approvals included review of erosion and sediment control plans for consistency with the *2002 Connecticut Guidelines for Erosion and Sediment Control.*

There is one clean up project being conducted along Harbor Brook as part of an 11 acre redevelopment/restoration project which includes the removal of a stone wall and regrading of the brook's banks to reconnect the flow to the floodplain.

5.2 Construction Sites Inspected

On-site inspections are made by Engineering and Planning Department staff throughout the construction process to ensure compliance with the City's Soil Erosion and Sediment Control Ordinance. Sites are inspected with regards to the approved construction plans. Enforcement actions are taken when necessary and all items/concerns are addressed by the site contractors or developers. In 2010, IWWC issued one stop work order and one notice of violation.

5.3 Employee Training

In 2010, the Assistant City Engineer and Environmental Planner received the CT DEP 2010 Municipal Inland Wetlands Commissioners Training Program.

5.4 Modifications to Plans

There are no modifications to the Construction Site Runoff component of the Stormwater Management Plan under consideration at this time.

5.5 Activities Planned for 2011

The CT DEP MS4 General Permit was reissued (without modification) on January 12, 2009. The City will continue to implement the SWMP according to the requirements of the current general permit. Meriden will implement requirements of the new permit, including modifications to this SWMP as necessary, when it is issued. Activities planned for 2011 include:

- Continue inspections and enforcement of current regulations, review regulations to consider including provisions for controlling construction wastes such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary wastes at the construction site that may cause adverse impacts to water quality.
- The City will continue to document the number (per permit year) of construction plan submittals, construction startups, and construction inspections and report these numbers in their Phase II annual report.
- The City's regulations will be reviewed relative to soil erosion and sedimentation control requirements, and to ensure that construction projects resulting in land disturbance of greater than 1 acre will be tracked for compliance. The City's regulations will be reviewed for necessary changes to comply with the SWMP and the MS4 General Permit.

6 Post Construction Stormwater Management

6.1 Plan Review

During 2010, the Inland Wetlands and Watercourses Commission (IWWC) and Engineering reviewed eleven (11) applications (9 were of sites over one acre in size and 3 were for projects proposed to disturb more than one acre) and the Planning Commission reviewed 13 site plans and one (1) subdivision application. Reviews for stormwater management issues are based on guidance contained in the *2004 Connecticut Stormwater Quality Manual*, as amended.

6.2 Structures Installed

The City requires that developers file maintenance agreements and details regarding structural stormwater controls for a construction or reconstruction project on the City's Land Records for the parcels affected. These agreements also require the owner to maintain and retain records of all maintenance activities on their structure(s).

Other than stormwater retention and treatment devices that have been installed as part of a City project, the City has not yet assumed responsibility for the maintenance of privately installed stormwater structures. These structures are instead privately maintained.

6.3 Structures Inspected

The structural control measures noted above were inspected during and after completion for compliance with the approved plans.

6.4 Natural Resource Protection

In 2010, the City implemented various regulatory controls to further protect the natural resources within its boundaries. These actions included:

- A new floodplain ordinance was adopted which references updated floodplain mapping
- An aquifer protection regulation was approved including Level A boundaries
- Building off of the recommendations of the Plan of Conservation and Development approved in 2009, the City has updated their zoning regulations to include more protections for sensitive areas (including steep slopes, sensitive soils, and wetlands). These areas have enhances soil erosion and sediment control requirements.
- The City introduced green infrastructure BMPs in some zones including rain gardens, green buildings, green roofs, and gray water reuse systems. Some areas are mandated to construct overflow parking of a pervious pavement material. Newly adopted zoning regulations also mandate smaller ratios of parking in some residential areas.
- The City is working in conjunction with the Town of Wallingford to adopt watershed protection regulations to include uniform drinking water protections.

6.5 Stormwater Education

In 2010, the Planning Commission has been receiving training on the CT DEP *2004 Connecticut Stormwater Quality Manual* as well as ways to promote Low Impact Development including increased infiltration and natural buffer protections.

6.6 Modifications to Plan

There are no modifications to the Post Construction component of the Stormwater Management Plan under consideration at this time.

6.7 Activities Planned for 2011

The CT DEP MS4 General Permit was reissued (without modification) on January 12, 2009. The City will continue to implement the SWMP according to the requirements of the current general permit. Meriden will implement requirements of the new permit, including modifications to this SWMP as necessary, when it is issued. Activities planned for 2011 include:

- The City of Meriden will continue to develop procedures for addressing post construction BMPs for all residential and commercial projects. The City will continue to require the recording of stormwater maintenance agreements on the City's Land Records.

- The City will continue to record the number (per permit year) of stormwater structures installed in the City and report this number in their Phase II annual report.
- The City's regulations will be reviewed relative to post construction stormwater management requirements, and to ensure that construction projects resulting in land disturbance of greater than 1 acre will be tracked for compliance. The City's regulations will be reviewed for necessary changes to comply with the SWMP and the MS4 General Permit.
- The City of Meriden will review the current parking regulations for opportunities to reduce parking requirements, which has the potential to reduce the overall amount of impervious cover associated with parking areas.
- The City of Meriden will rezone a 300-acre parcel on South Mountain Road to dedicate approximately 50% of it to be maintained as natural open space.
- The City of Meriden will review and potentially revise Subdivision Regulations to reduce the overall size of cul-de-sacs, which can reduce impervious cover in new subdivisions. This will be done in coordination with the City's Fire Department.

7 Pollution Prevention/Good Housekeeping

7.1 Employee Training Conducted

Meriden Fire Department response staff members are trained for hazardous materials at the operational level, including 96 career and 16 volunteer response personnel. All other personnel are trained to the Awareness level, including four (4) in the Fire Marshal's office. More than twenty (20) fire fighters are certified at the EPA technician level. These firefighters can provide technical expertise and be hazardous materials team leaders. The Department responds to hazardous material incidents at the operational level, which allows Department staff to properly use spill containment equipment including booms, pads, meters, and sand.

When responding to an incident, Fire Department staff uses the assistance of the Department of Environmental Protection Oil and Spill Response Division for technical and regulatory assistance. During 2010, Meriden Fire Department responded to 4 spills of combustible or flammable gas or liquid, 21 spills of gasoline or other flammable liquid, 13 spills of oil or other combustible liquid, 4 chemical spills, and one refrigeration leak. Spills that exceed reporting thresholds are reported to CT DEP and/or other agencies as applicable.

In years 2 and 3 of the permit, three (3) Fire Department staff members received "cameo" training, which is a computer aided spill response method that allows the operator to predict the flow of pollutants in the environment (e.g., air, water) and thereby react to a spill and evacuate residences (as necessary) in a more directed and effective manner.

As a result of implementing a Stormwater Pollution Prevention Plan (SWPPP) and Spill Prevention, Control and Countermeasure (SPCC) Plan for the Central Maintenance Garage on Michaels Drive the garage employees are equipped to address incidental oil or petroleum spills with on-site spill response resources.

Two Public Works staff members received training related to stormwater pollution prevention and/or spill prevention and containment in 2010.

The Highway employees involved with road salt application have been made aware of the City's new aquifer protection regulation and that the western portion of the City is currently protected by this regulation. There has been a change in behavior because of this education.

7.2 Street Sweeping

The City continues to sweep all streets at a minimum frequency of once each year beginning in the spring to remove winter road sand and other debris. There is a large effort in the early spring to sweep all roads in the City, and then one City sweeper and operator continues to sweep for the entirety of the spring, summer, and fall months.

In addition, the City uses a mixture of ~80% salt and 20% sand for application during winter storms. The mix reduces the quantity of sand used for snow removal, reducing sediment discharge to receiving waters.

During 2010, 189 miles of roads were swept at least once (once per year), representing 100% of City roadways. Approximately 1,500 tons of material was removed from City streets during this process. Approximately 2,500 tons of sand and salt were applied during the winter leading into Year 7 of the permit (the winter of 2009/2010).

During 2010, all street sweepings were properly disposed. Currently, this material is transported to New Britain for landfill disposal under an existing contract.

7.3 Snow Removal

The City continues to use environmentally responsible sand/salt application practices. As stated above, the City of Meriden applied 2,500 tons of sand and salt during the winter of 2009/2010 and removed a significant percentage of this material through the City's street sweeping efforts). The City currently stores salt in a "shelter logic" building which is larger than the City's previous domed salt shed.

In 2010, the City utilized their brine maker and truck to assist in snow removal. The brine maker reduces the quantity of sand and salt required during snow removal. Additionally, the sand and salt mix used is 20% sand to reduce sediment discharge to receiving waters.

When there is an excessive amount of snow, the city hauls snow to a designated storage area (corner of Miller and Center Street). Snow was stored at this location during the winter of 2009/2010. Snow is not placed directly within waters or wetland areas.

7.4 Catch Basin Cleaning

The City cleans catch basins and drainage lines during the spring, summer, and fall each year. In Year 4, the City purchased a new vacuum truck.

During 2010, approximately 150 catch basins were cleaned. The catch basin cleaning effort primarily occurred between March and October, resulting in the collection of winter debris as well as portions of the fall leaf waste.

In addition to general cleaning, catch basins are rebuilt or otherwise repaired by the City (many of the City's catch basins are being replaced with deep-sump catch basins, as described in *Section 6.2*). In some cases, an entirely new catch basin structure is inserted to replace the existing basin.

During 2010, catch basin sediments were disposed of at the New Britain landfill as described in *Section 7.2*.

7.5 Vehicle Washing

In 2009, the Highway Department completed the construction of a recycling vehicle wash rack. The wash rack allows the City to wash its fleet vehicles while avoiding the generation of wash runoff. The disposal of the recycled wastewater and accumulated solids generated by this facility will be properly handled by the City.

7.6 Construction Activities

The Highway Department uses erosion and sediment controls as necessary for city construction projects. These controls are installed and maintained throughout the duration of the projects.

7.7 System Upgrades/Repairs

The City made repairs to numerous catch basins in 2010. Additionally, the Paddock Avenue/Overlook Drive drainage channel was cleaned and regraded (approximately 700 linear feet) and the drainage channel at the rear of the new Dunkin Donuts site (875 East Main St.) was cleaned, regraded, and rip-raped (approximately 300 linear feet).

7.8 Complaint Responses

Complaints to the City regarding the general housekeeping of municipal facilities are directed to the appropriate department for investigation and response. Requests from the public are usually received in the early spring for prompt sweeping of winter road sand and cleaning of catch basins.

7.9 Spill Response Activities

All significant spills are handled by the Meriden Fire Department. CT DEP is notified of these situations as they happen. The Fire Department has a tactical unit that is prepared to respond to hazardous spills within the City. During 2010, Meriden Fire Department responded to 4 spills of combustible or flammable gas or liquid, 21 spills of gasoline or other flammable liquid,

13 spills of oil or other combustible liquid, 4 chemical spills, and one refrigeration leak. Spills are reported to the CT DEP Oil and Chemical Spill Division, as necessary, which, in turn, responds as appropriate. Other City staff did not participate in any significant spill response activities during 2010.

Both the Highway Department facility and Central Maintenance Garage maintain spill containment supplies including speedi-dry, absorbent pads, and containment booms within the facilities. Underground storage tanks (USTs) at the Central Maintenance Garage and Police Station have been equipped with leak detection systems.

7.10 Transfer Station

Managerial oversight of the City's Transfer Station falls under the jurisdiction of the Highway Department. Municipal residential bulk waste is received at the Transfer Station before being hauled to a certified facility for disposal. During several weekends throughout the year, the City waives the cost to the residents to utilize the transfer station. Freon is removed by a certified company prior to final disposal.

Upgrades to the transfer station have been completed in 2010.

7.11 Municipal Recycling

The City continues to promote City-wide residential materials recycling. Residential recyclables are picked up (curb-side) by a City-hired contractor in the inner tax district and by hired private haulers in the outer tax district.

In 2010, the City initiated a single stream recycling program in the inner tax district which allows residents to place all of their recycling into a single container rather than using multiple containers. The City distributed approximately 7500 – 95 gallon recycling containers as part of this program. The City informed the private haulers, who handle the outer tax district, of the change from dual stream recycling to single stream recycling. Between July 1 and November 30, recycling in the City has increased by 262 tons over the same period in 2009.

7.12 Household Hazardous Waste Collection

In conjunction with other communities within the Bristol Resource Recovery Facility Operating Committee and Tunxis Recycling Operating Committee, there are several household hazardous waste disposal events and a single electronic waste (E-waste) disposal event available to Meriden residents. Events are advertised in the local newspaper and brochures are available at the Department of Public Works, Engineering Division, and are posted within City Hall. Additional information is available on the organization's website. In 2010, 81 Meriden residents disposed of material through the hazardous waste collection events. Additionally, 9 Meriden vehicles disposed of E-waste during the June 5, 2010 TROC event. The City began its own E-Waste program roughly 18 months ago. Residents may dispose of their e-waste at the Transfer Station located on Evansville Avenue at no cost. This program has been extremely successful.

7.13 Municipal Facility Inspection

The City performs routine inspections of its facilities to maintain them in a neat and orderly condition. The Highway Department performs weekly inspections and cleaning of their facilities. The Central Maintenance Garage foreman conducts weekly inspections of waste management areas, secondary containment, oil/water separator, and waste streams. Inspection records are maintained by the foreman as part of the SWPPP/SPCC implementation program.

United Waste Oil Recovery prepared a waste management plan that documents the waste streams within the Central Garage Facility and recommends management measures for these waste streams.

CT DEP inspected the Central Maintenance Facility in 2010, and the recommendations of the inspection are being implemented as labor and funding become available. No enforcement actions (no citations) were taken by CTDEP as a result of the inspection.

7.14 Modification to Plan

There are no modifications to the Pollution Prevention/Good Housekeeping component of the Stormwater Management Plan under consideration at this time.

7.15 Activities Planned for 2011

The CT DEP MS4 General Permit was reissued (without modification) on January 12, 2009. The City will continue to implement the SWMP according to the requirements of the current general permit. Meriden will implement requirements of the new permit, including modifications to this SWMP as necessary, when it is issued. Activities planned for 2011 include:

- Install a canopy over the new vehicle wash rack in 2011.
- Document pertinent maintenance/cleaning operations.
- Maintain a list of complaints that it receives regarding road and highway maintenance concerns.
- Complete development of Training Program and conduct employee training.
- Continue to plan for the mapping of storm drainage lines to complete a drainage pipe network in GIS if funding becomes available for this project.
- Continue to maintain records of illicit discharge complaints and remedial actions taken.
- Continue to inspect the Central Maintenance Garage weekly and maintain records of each inspection.
- Continue facility and municipal outfall monitoring program.
- Follow up on any problems identified through outfall monitoring program.

8 Annual Stormwater Monitoring

The CT DEP Phase II General Permit requires annual stormwater monitoring of at least two outfalls from each of three land uses (industrial, commercial, and residential) for a total of six (6) outfall locations. Monitoring parameters, procedures, and storm event criteria are described in the General Permit.

The City has selected sampling outfalls based on the land use(s) within the drainage areas of the outfalls as well as practical considerations including accessibility and proximity to other sampling locations. A field sampling plan describing the sampling objectives, outfall locations, sampling parameters, and monitoring procedures for the annual monitoring program has been submitted in prior annual reports. City staff collected outfall samples for 2010. Outfall locations may be modified for future sampling events. Monitoring results are included in *Appendix D*.

FUSS & O'NEILL

Appendix A

General Permit for Stormwater – Small Municipal Separate Storm Sewer Systems (#GSM000038) – City of Meriden

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certificate of Registration

Issued To:

CITY OF MERIDEN

For The

STORMWATER - SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS

General Permit

Arthur J. Rocque, Jr.

Commissioner

Permit No. GSM000038

Facility Information
MERIDEN, CITY OF
MS4 PERMIT
MERIDEN CT 06450

Application No.: 200401130
Issue Date: 13-APR-04
Exp. Date: 08-JAN-09
Site No.: 80-266

Appendix B

Educational and Outreach Materials

Storm Drain: Where Does the Water Go?

Do you know that difference between a "storm drain" and a "sewer drain"? Most people don't realize that these are two separate systems. The sewer drain carries sewage from your house and is processed and treated at the Water Pollution Control Facility. The large circular plates you see in the middle of the street are actually manhole covers for the sewer lines.

Storm drains or catch basins are the open or grated drains you see at the sides of the road by the curb. These drains collect all the water run-off from street to help in flood control. The big difference between these systems is that this water is NOT processed or treated. This water goes directly to streams, brooks and rivers. Some of these water sources are actually part of the public drinking water system.

Many people ask "so why put a storm drain in an areas that have the potential to directly pollute our water ways". The answer is that storm drains are designed to reduce the potential for road flooding, including parking lots and highways. It is the responsibility of all residents to protect the water, both drinking and recreational.

How do we do this? Simple: Don't' put anything directly into the storm drains that could pollute the water. Some examples include waste oil or other auto fluids generated from routine car maintenance, leaves that you remove from your property, litter and dog feces. These items are also called "non-point source pollution".

So what do you do with your auto fluids, leaves and dog feces? Auto fluids and yard waste should be properly recycled, contact your local Public Works Dept. concerning the location and operation times of recycle centers or create a backyard compost for yard debris. Dog feces should be bagged and placed with your normal household garbage. Teach young children not to throw gum wrappers or other litter into the street.

What should you do if you see someone dumping in a catch basin? First, try to educate the person, maybe they don't realize that they are polluting the water. Also contact your local health department so that we may educate the person dumping. If the person continues to dump, they may face legal action. You should also contact your local Public Works Department if you notice a catch basin in need of cleaning.

Safe and clean water is everyone's responsibility.

Submitted by: Scott Bryden, RS, MBA
Environmental Health Administrator
City of Meriden, Health Dept.

Single-stream recycling is catching on

By: Dan Ivers | Posted: Wednesday, September 1, 2010 10:37 pm |

Online Features Links

MERIDEN - Earlier this summer, the city brought thousands of blue 96-gallon barrels to homes in the inner tax district to encourage residents to recycle more. So far, it appears to be taking hold.

The barrels, which allow for all recyclable materials to be placed in one container instead of being sorted into separate ones, are being used by a large number of homes, according to city Public Works Director Robert Bass.

A total of 7,474 single-stream barrels were dropped off around July 1, and in the month that followed, the city sent 192 tons of recyclable materials to the Berlin Municipal Recycling Center. In July 2009, when residents were still placing newspapers into one 14-gallon container and plastic and glass materials into another, garbage collectors took in just 164 tons.

The city does not separate how much recyclable material was picked up from either the inner or outer tax districts, although Bass felt confident that the new system in the inner district was the primary factor behind the increase.

"This is a good barometer that, yes, people are getting it," he said. "People in the inner district are participating as never before."

Bass added that preliminary estimates for August indicated that the amount of recyclables the city would take in would grow from July as residents become more accustomed to using the new barrels. Those figures will not be finalized until later this month.

The single-stream barrels were delivered only to the homes in the city's inner tax district because garbage pickup in the outer areas of the city is done through private companies such as Tony's Trucking Co. and AJ Waste Systems. The municipal pickup service is reflected in the two districts' different tax rates - 31.43 mills in the inner district, 29.53 in the outer district.

Residents of the outer district may see large single-stream barrels lining the curbs in the near future, however, as many private companies begin to institute the practice. Tony's Trucking Co., which services around 6,000 homes in Meriden's outer district, began offering single-stream pickup last week, according to owner Rick Pulcinella.

Pulcinella said the company instituted the practice due to pressure from the state, and that he sees no real financial gain from it.

"It was working fine before. It's up to the people to recycle, not the (collectors)," he said.

In 2008, city officials reported that recycling rates were much higher in the outer district than in neighborhoods where residents pay the city for pickup.

The city's interest in raising recycling rates was due to pressure from the state to comply with its solid waste management plan, as well as a desire to potentially save a significant amount of money.

"From a financial standpoint, it costs less money to dispose of recycling than it does to send (garbage) to the burn plant," said Bass.

It costs the city just $30 to dispose of one ton of recyclable materials, which is less than half of the $65 it costs to send one ton of garbage to the burn plant. The Public Works Department has budgeted $299,258 this year to pay Hartford-based All Waste Inc. to pick up recyclables and garbage in the inner tax district.

Diane Duva, an assistant director with the state Department of Environmental Protection, said instituting single-stream recycling has been a particularly popular way for municipalities and private collectors to reduce the volume of trash they need to dispose of. Another common way has been to change the pricing systems so that residents are billed according to how much trash they produce.

For instance, the town of Granby issued 95-gallon single-stream recycling bins last year, and reduced the size of town-issued garbage cans to just 65 gallons, with residents billed extra for each bag of garbage they cannot fit inside the smaller can. The result has been an increase in recycling as well as a reduction in solid waste.

"They're helping people understand that it's cheaper to recycle than it is to dispose," she said.

While the new system in inner Meriden has been successful over its first two months, it is not entirely free from kinks. Bass said around 40 households have begun putting their general trash into the new barrels rather than recyclables.

"The one thing that has been a thorn in our side," he said, "is the people that are using them incorrectly."

Quinnipiac River Watershed Association
Dedicated to the preservation of the Quinnipiac River and its watershed

Streamflow Regulations

2/10/2010

Submitted by January 29, 2010
February 2010 – Stream Flow Regulations
Life along the Q River… An Update from the Quinnipiac River Watershed Association

Recently, there has been much talk about the impending Stream Flow Regulations, currently being debated at the Legislator in Hartford. The gist of the debate is that the State wants to balance the water usage between nature and humans. Their intent is to classify flowing bodies of water, everything from brooks to streams into one of four classifications. These four classifications range from: One – pristine, greatly favored to nature; Two - still favorable to nature, but with some human use; Three – relatively balanced between nature and human use; and Four - strongly favored to human use. Class Four rivers would not take into account the wildlife and nature.

The wildlife in and around the Quinnipiac River needs a certain amount of water to survive and thrive. There are natural high and low periods based on the feed from the water source to the weather. By the same token many local municipalities and water companies take water from the Quinnipiac River to service their customers and many wells are fed from the river too.

How did this come about? In 2005 the CT legislature required statewide standards for water flow in its rivers. This was as result of the Shepaug River court case, in which the Town of Washington challenged the City of Waterbury for taking water too much water from the Shepaug River for human use.

Why is this important? The proposed Streamflow Regulations will decide the fate of water in the Quinnipiac and its streams, including Wharton Brook, Muddy River, Sodom Brook, Harbor Brook, Eight Mile River, and Ten Mile River. This is the first science-based effort to protect water flow in 40 years.

Why does this really mean? If the State classifies parts of the Q River as class Four the river won't be restored because they were historically abused. The Quinnipiac has been recovering from pollution in recent years, bringing back fish and bald eagles, ospreys and other wildlife that eat fish. Local residents now enjoy wildlife watching, fishing for stocked and wild trout, paddling, and hiking on river trails. Wallingford will soon have a fishway to help fish migrate up the Q River.

Like many things in life, it's all balance. We CAN balance the needs of nature and humans. We encourage ALL users of the Q River to use it judiciously and with care. That means conservation from water companies, municipalities and well users. That means treating our Quinnipiac River with respect. That means being responsible for our water usage.

Our state is water-rich - with intelligent planning, there is enough water for both fish and faucet. Good management can provide water for us all to use and to enjoy with nature.

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Quinnipiac River Watershed Association
Dedicated to the preservation of the Quinnipiac River and its watershed

Eagles on Hanover Pond

3/10/2010

March 2010 – Eagles at Hanover Pond
Life along the Q River… An Update from the Quinnipiac River Watershed Association

For awhile now a pair of mature, bald eagles, along with an occasional juvenile, has been spending time at Hanover Pond in South Meriden. On any given day they can be seen in the large trees on the island in the center of the pond, or else in the many big trees along the edge of the water. Most of the time they are just looking over the area, but every now and then you can see them in action, swooping down into the pond in search of a meal. Other times you can see them gliding on the thermal currents, floating over Hanover Pond with such ease.

The bald eagle is our national symbol and has been struggling for survival for the past fifty years. Loss of their habitat and the use of the pesticide, DDT resulted in severely depleted the eagles' numbers. The American Bald eagle was placed on the 'Endangered' species list and was moved to 'Threatened' in July of 1995 and through conservation and repopulation efforts was taken off the list in June of 2007.

The female, who is about 13 pounds with a wingspan of up to seven feet, is usually 25% bigger than the male, who, by contrast, is about 9 pounds with a five and a half foot wingspan. They have the trademark bald head, which is actually white feathers, with yellow talons and hooked beak and that takes about four years to achieve maturity, with a lifespan of twenty years.

According to QRWA President, Ginny Chirsky, "Because of the tremendous efforts to restore the Quinnipiac River throughout the state, Hanover Pond has now become a feeding ground for the eagles, who feed primarily on fish, small animals and water fowl. These big, beautiful birds would not hang around if there was not a substantial food source, which is a result of cleaner water."

Both eagles may not be there for long. Bald eagles mate for life and in CT courtship begins in January. With any luck they will be nesting one to three eggs, usually two, that will a hatch sometime in April to May.

Their nest, which is called an aerie, is quite large and estimated at five feet wide by 2 feet deep. The nest needs a large and strong tree to sustain the weight of the nest and eagles. Large branches are used to make the nest and it is lined with twigs, grass, and moss. One bird sits on the eggs all the time to keep them warm while the other scouts for food.

Both parents will take turn feed the baby eagles, which are called eaglets, a diet of mostly fish, which is eaten by the parent and regurgitated into the mouths of their young. When the babies are about three months old they will begin to fly and search for their own food. They will stay in the nest until the end of the summer and then leave to find their own feeding area.

According to Mary Mushinsky, "In 2007, we celebrated the first record of bald eagles nesting on the Quinnipiac River in North Haven. They raised two young. The following year, the eagles abandoned the nest upon the start of construction for the North Haven Commons shopping mall."

Mushinsky continues, "QRWA volunteers have participated in eagle counts in prior years, and our paddle program interns, along with local residents, have enjoyed the presence of 2 juvenile eagles for the last 2 summers at Hanover Pond."

"Bald eagles in the Quinnipiac River watershed are a beautiful sight to see and give us hope for the future," adds Peter Picone, CT

DEP Wildlife Specialist and QRWA board member.

As stewards of the environment we ask you to observe these birds from a distance so as not to disturb them. This is especially true for the nesting areas, as the eagles just want to protect and care for their young. If we respect them, their feeding and nesting areas, these eagles will hopefully consider Hanover Pond their home for a long, long time.

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Quinnipiac River Watershed Association

Dedicated to the preservation of the Quinnipiac River and its watershed

THICKETS AND EDGES?

(Excerpt from QRWA River Resources booklet, Taking a Close Look at Stream-side Woods, 1996)

Because sunshine reaches river banks through the opening over the river,and because banks are often battered and eroded by floodwaters, they are colonized by many of the same "disturbance" or "edge" plants, which come up in a forest clearing or at the edge of a field or on exposed, bare soil. Also, past farming, logging, sand and gravel-mining, or filling and grading for roads may have left their marks, in the woods by a stream or river, as elsewhere in the watershed. Unnatural landforms (berms, ditches, or pits), walls or foundations, or debris (tailings or brush piles) are important clues to past activities. Plants' growth forms and types of seed or fruit are also helpful in reading disturbance history.

Blackberry Thicket

Disturbance communities occur throughout the watershed, from Meriden's urban stream banks, to temporarily abandoned construction sites, to hedges between Cheshire's farm fields, to fill banks along the salt marsh near State St. in Hamden. One excellent example of a disturbance community is the former Banton Street neighborhood in Quinnipiac River State Park in North Haven, abandoned and demolished by the State of Connecticut about

tweny years ago due to severe flooding. Another is the former lakebed of Community Lake in Wallingford, which has grown up since the great dam breech of 1979.

HOW DO THEY FUNCTION? A young patch of woods at a disturbed site is often written off as nearly useless. Although young woods may not appeal to hikers, they are preferred by many wildlife species like deer, ruffed grouse, and blue-winged warblers.Young woods have good protective cover and food for wildlife due to several common traits of colonizing plants: (1) bushy, fast growth in plenty of light and (2) abundant berries or seeds for good dispersal to newly disturbed areas. This is the case even for invasive, alien species like asiatic bittersweet. Many good colonizers also have function well as wildlife habitat, as colorful, if untidy, scenery, and for filtering pollutants. Dense thickets make well-hidden nest sites and offer good protection from harsh weather. Berries are important food forbirds like towhees and cardinals, some, like bayberry and sumac, linger through the winter, feeding many migrants as well. Abundant & relatively large grass & sedge seeds feed sparrows and rodents. The twigs and leafy undergrowth of a fast-growing "early successional" thicket provide plenty of browse for deer and rabbits.

Thick, low vegetation takes up nutrients and pollutants as well as mature forest, and may even be better at filtering storm water carrying sediment. In time, there will be tall, scenic trees overhanging and shading the river, providing wildlife dens, and shedding leaf litter for the aquatic food chain.

On the other hand disturbed young woods is apt to grow up into a forest with few plant species which grow poorly in bright light or spread their seeds poorly. Alien shrubs like Russian Olive and Multiflora Rose, and vines like Asiatic Bittersweet often crowd out native species. The reed phargmites also spreads rapidly in bright sun, crowding out other kinds of plants, until the woods is mature enough to provide some shade.

READING DISTURBANCE COMMUNITIES Bare soils: Are there many plants with tiny seeds that are easily blown by wind - birches and speckled alder or fluffy-seeded willows and cottonwoods? Do you notice annual plants like orange-flowered jewelweed or the nettle relative, clearweed? Annual weeds and tiny-seeded woody plants have a hard time seeding into established vegetation, but readily colonize bare soil exposed by sediment deposits, erosion on river banks, or by human disturbance. Trees with larger, winged seeds like those of maples, elms, ashes, and catalpa are good at reaching bare soil on river banks. So are heavy berry producers like silky dogwood and red-fruited sumacs. Look for traces of earth-moving like ruts or berms. To identify fill, check for a lack of natural topsoil and buried debris, but watch out

for hazardous materials!

Pastures: Do you see a tree with a rounded shape next to many pole-like ones? This is a clue that the rounded one was once growing in the open, perhaps as a shade tree in a pasture by a stream. Are there many prickly or distasteful species? Livestock and most wildlife don't graze red cedar, multiflora rose, thorny black locust, and bitter black cherry. Species like sumac and locust, which sprout from parent plant's roots, do well in former pastures, where sprouts can survive better than seedlings. Stone walls are a another sign of former farmland.

Lumbered areas and tree fall gaps: Even in mature forests logged in colonial times you can find clusters of trunks from stump sprouts of oak, hickory, and maple. Are there many light-loving heavy seed producers like birches and black cherries, which would have sprung up in a forest gap?

Back to Publications

WHAT GOOD ARE STREAMSIDE WOODS?

Quinnipiac River Watershed Association, River Resources Education Series

Why do natural resource experts tell us that a band of natural vegetation should be left undisturbed, next to streams and rivers? Why pay attention to streamside woods in the first place? All its parts are useful in different ways: vine tangles and shrub thickets; living foliage and dead leaf litter; massive tree trunks; nuts, berries, and flowers; and the mysterious underground complex of soil, roots, microorganisms, and fungi. To describe the ways that streamside vegetation benefits the Quinnipiac ecosystem, Long Island Sound, and society in general, one can name various "functions" - the official jargon used by environmental regulators as they evaluate development proposals.

Bank anchors: Streamside root networks bind the soil, and foliage shields the bank from the eroding force of pelting raindrops, rushing runoff, and from scouring floodwaters. Protective vegetation includes overhanging shrubs and trees as well as dense patches of goldenrods, grasses, or touch-me-not; clumps of fibrous-rooted ferns; and carpets of delicate mosses and liverworts. Dead leaves and thatch (fallen grass stalks and leaves) also protect the soil on gradual banks and banktops.

Flood reduction and water supply: As leaves and branches filter and slow down rainfall, more water soaks into the ground (infiltration) and less runoff reaches the river. Also, water is trapped in the hollows of a hummocky forest floor. Groundwater - not floodwater - supplies our wells and keeps springs and brooks flowing, so the river is higher - for canoeists, fish and fisherman - in dry spells.

Sediment Traps: Stormwater often flows over land towards a watercourse, carrying sand and dirt. In a forest this sediment is filtered by leaf litter and vegetation. Sediment degrades streams in all sorts of ways. These include filling stream bottom crevices which are home to aquatic insects, covering gravelly spawning areas, clogging fish gills, blocking light needed by underwater plants, and carrying toxic pollutants attached to the particles. Unfortunately, streamside vegetation can not filter sediment from storm drains which empty directly into streams or sparsely vegetated channels.

Uptake of pollutants: Just like a scummy neighborhood pond ringed by well-kept lawns, the river and the Sound suffer from too much algal growth, fed by excess nutrients - soluble nitrate fertilizers in shallow groundwater, nutrient-laden dirt and pet wastes in residential storm water, farm runoff, and untreated sewage from leaks and overflows. Streamside vegetation and soils are an amazing antidote to these pollution problems. Soil particles trap pollutants like magnets. Plants transform excess nutrients into lush growth that supports the food chain. Plants also take up toxic heavy metals which are then recycled back to the soil. Soil organisms can break down many pollutants - eventually even motor oil (in small quantities).

Aquatic habitat: Streamside trees like red maples and green ash shade stream water, keeping it cooler and able to hold more oxygen for fish and aquatic insects to breathe. Overhanging shrubs such as silky dogwood protect fish from predators. Trees and shrubs support adult life stages of many aquatic insects, and they produce leaf litter and decaying wood for creatures like aquatic sowbugs and shrimplike scuds at the base of the food chain. Fish and smaller creatures lurk, feed, and reproduce among submerged branches. Because woody debris and


Scud

underwater roots create well-aerated riffles in a moving current (the way rocks do), these areas support insects like stoneflies, mayflies, and caddisflies, which have high oxygen needs. Such insects are important food for trout and other fish such as chubs and long-nosed dace, known as "cold-water" fish.

Wildlife habitat: Plants along a watercourse offer food and shelter to wildlife. Tree cavities, thickets, and evergreen branches protect birds and mammals from harsh weather and predators. Garter snakes, red-backed salamanders, and bess beetles are a few of the many creatures which hide under dead branches lying on the ground. Loose tree bark is an important shelter for overwintering insects - like cocoons of tussock moths. Branches are used as perches for birds like kingfishers, waiting to snatch a fish from a stream. Plants also provide the base for a complex forest food chain. Myriad insects, white footed mice and birds like catbirds and tufted titmice eat obvious plant foods like seeds and nuts, berries and grapes, nectar, and foliage. Twigs, bark, and small branches are browsed by deer and cottontail rabbits. Roots and wildflower bulbs are eaten by chipmunks and many insects such as borers in the clear-winged moth family. Feeding on decaying plant matter under the leaf litter are organisms such as earthworms, sowbugs, and fungi. These, in turn, are food for many creatures like shrews, skunks, garter snakes and fungus beetles. Thickets of brambles, field wildflowers, and unmown grasses supply food and hiding places for wildlife, such as common yellowthroats, yellow warblers, and rabbits. Wildlife also use forested or brushy stream corridors to travel through developed areas.

Human Uses: Humans enjoy streams in many ways. A wooded stream or river corridor is actively enjoyed by hikers, canoeists, fishermen, hunters, and (if it is clean enough) swimmers. It also provides scenery to passing drivers and nearby residents. Streamside woods are good for birdwatching and wildlife tracking, because wildlife gravitates towards streams to drink and feed. They serve as outdoor classrooms and biology research sites. Archaeologists and local history enthusiasts look for traces of the Native Americans who traveled, hunted and fished along waterways, the colonists who farmed and harvested trees in the fertile bottomlands, and the early New Englanders who set up mills and factories next to sources of water power. Some riparian forests are still productive wood lots and contain sources of wild foods, such as fox grapes and common elderberry.

WHY DO FUNCTIONS DIFFER FROM PLACE TO PLACE ?

The functions of streamside woods involve the interactions of plants, animals, soil, air, water, and people. Different plant species are stronger in some functions than others. For example, sycamore trees are especially good for wildlife shelter because they tend to be hollow; willows anchor banks well with networks of shallow roots, and red oaks make better lumber than cottonwoods. The more species of plants in streamside woods, the more interest and variety for human uses, and the more kinds of wildlife food and shelter. Overall forest characteristics and surrounding land uses also affect function. For example, flood prevention is affected by the steepness of the slope, the sandiness and depth of the soil, and the overall width of the wooded strip along a stream. Ironically, the less efficiently a particular streamside area filters sediment and pollutants, the more of it is needed to protect water quality. The more development there is nearby and upriver, the more crucial these water quality functions become, to protect the stream from non-point source pollutants. Likewise, a small patch of streamside woods near a development may lack certain kinds of wildlife - like bobcats and forest warblers; but provides habitat for the more adaptable wildlife - like rabbits and song sparrows.

Tess Gadwa

From town to town, regulations to protect streamside woods vary widely. "Buffer" distances from a stream may range in width from 25 feet to over 100 feet, or are "adjustable". Level of protection ranges from a mere review requirement to strong restrictions on development. Buffers are better protected by existing law in wetlands and floodplains than in uplands. Regulations can often be strengthened, if the economic value of buffer vegetation can be explained. Clean water, scenic streams with valuable wildlife and fisheries resources, and water-based recreation improve the quality of life and are community assets which increase property values and help towns to attract desirable industry.

Prepared by the Quinnipiac River Watershed Association, 99 Colony St. Meriden, CT 06410 (203) 237 2237 in June 1996 for the River Resources Educational Program. Funding support provided by the **Community Foundation for Greater New Haven and the CT DEP through the US EPA NPS Grant under section 319 of the Clean Water Act.** Written by Sigrun Gadwa. Artwork by Tess Gadwa and by courtesy of the Isaak Walton League.

STREAM BIOSURVEYS

Introduction

Organic pollution in streams can result in the loss of many desirable aquatic species including fish and mussels

As human populations have grown, more and more pollution of our waters has occurred, both from point source discharges and as nonpoint or diffuse pollution. There are several categories of pollution associated with the aquatic environment (e.g. toxic pollution), but one of the most common categories is *organic pollution*. This is caused by oxygen-demanding wastes such as domestic sewage, leachate from landfills, and agricultural and urban runoff.

The natural processes of chemical oxidation and biological decomposition that occur within water-courses, consume dissolved oxygen. Decomposition of materials is a normal process in all aquatic ecosystems and is a function of decomposers such as bacteria and fungi. These organisms play an important role by metabolizing organic matter as an energy and nutrient source and use dissolved oxygen in the process.

However, serious consequences to aquatic organisms can result if the natural mechanisms that clean the water are overloaded by large influxes of organic pollution. Severe oxygen depletion can result in the loss of many desirable aquatic species including fish (e.g. trout) and mussels, and aquatic organisms such as stoneflies and mayflies.

Water Quality Testing

Traditional Methods

The long-term effects of nonpoint source pollution, such as that from urban runoff, have often been determined through chemical monitoring. In recent years, however, a growing body of literature has emerged that points to the importance of biological monitoring. Many states are now selecting biological and physical monitoring over traditional chemical monitoring in

their efforts to determine the health of aquatic ecosystems, and for watershed and landuse planning purposes.

A single sampling of stream chemical constituents only provides a snapshot of water quality

Traditional water quality sampling methods have emphasized analyses of physical and chemical parameters such as dissolved oxygen, pH, temperature, nitrates, phosphates, and others. Although useful, this approach has several limitations. There are many chemical constituents that could theoretically result in water quality degradation. Not only are some of these very expensive to analyze, but their sheer number increases the likelihood that a pollutant will not be identified. A single sample can only provide a "snapshot" of water quality on the day of sampling, and may provide no information on recent degraded conditions which have since cleared up, but whose effect upon aquatic biota may be more lasting.

Benthic Organism Sampling

Biosurvey Methods

The technique of stream benthic organism or macroinvertebrate sampling was developed more than 50 years ago to complement traditional chemical water quality approaches, as well as to provide new information not available through other methodologies. This includes information about effects from multiple stressors (e.g. chemicals, sedimentation, exotic species, etc.) arising from point sources, nonpoint sources, habitat alteration, and hydrological changes. For example, ecological responses to such disturbances can be observed at the community level of organization of benthic macroinvertebrates, offering dependable and readily observable indicators that integrate the impacts of multiple, and often subtle, stressors.

What Are Benthic Macroinvertebrates?

Benthic organisms can serve as biological indictors of water pollution

The term "benthic" means bottom-dwelling. Benthic macroinvertebrates are organisms without backbones that live in, crawl upon, or attach themselves to bottom substrates (e.g. sediments, debris, logs, plants, filamentous algae, etc.). The term "macroinvertebrate" refers to those organisms that are large enough to be viewed without the aid of a microscope and that are retained by a sieve with mesh sizes greater or equal to 200 to 600 micrometers (i.e. #30 mesh). Benthic macroinvertebrates include immature insects (larvae and nymphs), worms, crustaceans, mollusks, (clams and mussels), leeches, mites and snails. Insect larvae tend to be the most abundant macroinvertebrates in freshwater aquatic systems.

The majority of benthic macroinvertebrates are found in the riffles (i.e. erosional areas) of streams. Riffles range from uneven bedrock to cobbles to boulders. The optimum riffle area contains gravel-sized (1-inch diameter) to cobble-sized (10-inch diameter) substrate. The flow of water over these areas provides plentiful oxygen and food particles. Riffle-type organisms may also be associated with submersed or overhanging fallen woody debris. Riffle-dwellings communities are made up of macroinvertebrates that generally require high dissolved oxygen levels and clean water. Most of these

organisms are intolerant to pollution. In slow flow areas such as runs and pools (depositional areas), decomposer communities, which tolerate lower dissolved oxygen levels and higher organic matter and sedimentation, are typically more abundant. Riffle-dwelling communities are more sensitive to increasing pollution than communities in the pools or slow flowing areas of the same stream.

There are four primary feeding groups of benthic macroinvertebrates: shredders, filter collectors, grazers, and predators. Shredders such as stoneflies (*Plecoptera*) feed on plant material and some animal material, which is generally dead, and break it down into smaller particles through their feeding and digestive process. Collectors, such as caddisflies (*Trichoptera*) and blackflies (*Diptera*), feed on fine particulate matter that they filter from the water. Grazers, such as snails and beetles (*Coleoptera*), feed on algae and other plant material living on rocks and on plant surfaces. Predators such as dobsonflies (*Megaloptera*) or dragonflies (*Odonata*) feed on other macroinvertebrates. Individual species may be generalists, and fit into more than one of these groups (as opposed to specialists).

Benthic macroinvertebrates, as a group, exhibit a relatively wide range of response to chemical and physical water quality stressors (pH, temperature, dissolved oxygen, organic pollutants, heavy metals, sedimentation, etc.) and thus can serve as ***biological indicators*** of water pollution. Some organisms are tolerant of degraded water quality conditions, while others are pollution-sensitive. Many snails, worms and midge larvae belong to the former group, while the most widely recognized members of the latter group are the *Plecoptera* (Stoneflies), *Ephemenoptera* (Mayflies) and *Trichoptera* (Caddisflies).

In most cases, unpolluted streams will support a diverse population of macroinvertebrates

Some pristine streams have a low diversity of macroinvertebrate fauna because of the cold temperature and/or relatively low nutrient levels. Headwater streams may have only two or three dominant species. In most cases, however, an unpolluted stream will support a diverse population of macroinvertebrates, with pollution-sensitive species well represented. However, species diversity declines as water quality deteriorates and pollution-tolerant organisms become increasingly dominant.

Advantages of Macroinverterbrate Sampling

Plafkin et al. (1989) list several advantages of sampling stream macroinvertebrates in order to make inferences about water quality:

1. Since most stream macroinvertebrates have limited migration patterns or are sessile and spend much time clinging to rocks or the stream substrate, and do not move long distances, they are good indicators of localized water conditions.

2. Aquatic organisms integrate the effects of chemical, physical and biological parameters. Conducting an aquatic biosurvey will thus increase the likelihood that a degraded condition will be detected, if present.

3. Since most of these species have a relatively short life cycle (approximately one year), they will respond to stressors more rapidly than other longer-lived components of the community (e.g. fish).

4. Sampling techniques are rapid and inexpensive. An experienced biologist can detect degraded water conditions with only a cursory, or qualitative, examination of the macroinvertebrate community.

5. Benthic macroinvertebrates are a primary food source for fish, and as such can provide valuable information on the relative health of the fish community.

6. Benthic macroinvertebrates are common to abundant in most streams.

Sampling Methods

The simplest method of collecting stream macroinvertebrates is to inspect in-stream rocks for attached organisms, or disturb the stream substrate while placing a net downstream to gather dislodged biota in a predetermined number of sampling locations, often 11 approximately one foot square areas of substrate in the state of Connecticut. Depending upon the nature of the study, the organisms are identified to either the family, genus or species level. Family-level identification is most expeditious, and is the technique most commonly used. However, it is less precise since members of some stream macroinvertebrate families show a range of pollution tolerances, and the sensitivity of these families can only be expressed as an average (Hilsenhoff 1988).

Measuring Biological Health

The Biotic Index

A variety of useful indices or measurements (metrics) have been developed for assessing the health of streams through benthic macroinvertebrate sampling. These include: taxa richness, EPT Index or richness, percent abundance of EPT, percent dominance, percent dominance of scrapers, Hilsenhoff s Biotic Index (HBI), EPT:chironomid ratio, Pinkham and Pearson community similarity index, and many others.

Of these, and there are many, Hilsenhoff s (1988) biotic index (HBI) is one of most commonly used. Hilsenhoff developed a rapid stream biosurvey methodology that requires identification of macroinvertebrates to family-level. This method assigns a numerical score (biotic index) ranging from 0 to 10 to the most common stream macroinvertebrate taxa. The biotic index is directly related to the degree of pollution-tolerance and is based on field and laboratory responses of organisms toward organic pollution.
Approximately 100 organisms are collected and randomly sampled from a variety of habitats within the stream, including erosional and depositional areas (e.g. riffles and runs). The organisms are identified to family-level and the total number (**n**i) of each is recorded. The following formula is then used for the estimation of the Family-level Biotic Index (FBI):

$$FBI = \frac{\Sigma\, n_i\, a_i}{N}$$

where:

ni = the number of specimens in each taxonomic group

ai = the pollution tolerance score for the taxonomic group (see Table 1)

N = the total number of organisms in the sample (usually 100).

Ideally, the Family-level Biotic Index should be calculated during several different times of a year (e.g spring, summer and fall) and compared with reference sites within the particular watershed or in the region for more accurate conclusions to be drawn.

Who Can Take This Pollution?

Introduction

It is well documented that pollution of streams reduces the number of species of the aquatic ecosystem, (i.e. species diversity), while frequently creating an environment that is favorable to only a few species (i.e. pollution-tolerant forms). Thus, in a polluted stream, there are usually large numbers of a few species, while in a clean stream there are moderate numbers of many species.

For instance, turbidity reduces light penetration and submerged aquatic plant productivity. Thus turbidity will affect those macroinvertebrates depending on plant matter for food and those that rely heavily on visual location of prey (predators). Filter feeders' filtering mechanisms may also be blocked by sediment particles associated with turbid waters. Turbidity also tends to increase temperature in waters and is often associated with higher organic decomposition. These are conditions that reduce oxygen levels and may result in impacts to many gill-breathing mayfly, stonefly, and caddisfly larvae that thrive only where there is abundant oxygen in the water. As turbidity increases - and turbidity is often associated with other pollutants such as nutrients, PAH s, and heavy metals - rock dwelling or attaching macroinvertebrates such as mayflies, stoneflies, and caddisflies, will be replaced by silt-tolerant and pollution tolerant macroinvertebrates that can tolerate low oxygen levels in the water or that can breath atmospheric oxygen. For example, rat-tailed maggots have snorkel-like breathing tubes, some snails have lungs (e.g. *Physa* spp.), and midges (chironomids) and worms (oligochaetes) have respiratory pigments which enable them to more efficiently obtain oxygen that is in low concentrations.

Pollution *Intolerant* Macroinvertebrates

The following are some typical macroinvertebrate groups (taxa) commonly encountered in streams and that usually indicate ***good water quality***.

Mayflies

Mayfly nymphs are often the most numerous organisms found in clean streams. They are sensitive to most types of pollution, including low dissolved oxygen (less than 5 ppm), chlorine, ammonia, metals, pesticides and acidity. Most mayflies are found clinging to the undersides of rocks.

Stoneflies

Stonefly nymphs are most limited to cool, well-oxygenated streams. They are sensitive to most of the same pollutants as mayflies except acidity. They are usually much less numerous than mayflies. The presence of even a few stoneflies in a steam usually suggests that good water quality has been maintained for several months prior.

Caddisflies

Caddisfly larvae often build a portable case of sand, stones, sticks, or other debris. Many caddisfly larvae are sensitive to pollution, although a few are moderately tolerant. One family spins nets to catch drifting plankton, and is often numerous in recovery zones below sewage discharges.

Beetles

The most common beetles in streams are riffle beetles and water pennies. Most of these require swift current and an adequate supply of oxygen, and are generally considered to be clean water indicators.

Pollution *Tolerant* Macroinvertebrates

The following are some typical macroinvertebrate groups that are commonly encountered in streams and which usually indicate ***poor water quality***.

Midges

Midges are the most common aquatic flies. The larvae occur in almost any aquatic situation. Many species are very tolerant to pollution; most of these are red and are called bloodworms. Other species filter suspended food particles, and are numerous in sewage outfall recovery zones.

Worms

The segmented worms include the leeches and the small aquatic earthworms. The latter are more common, though usually unnoticed. They burrow in the substrate and feed on bacteria in the sediment. They can thrive under conditions of severe pollution and very low oxygen levels.

Sowbugs

Aquatic sowbugs are crustaceans that are often numerous in situations of high organic content and low oxygen levels. When abundant they can indicate a stream segment in the recovery stage of organic pollution.

Black Flies

Black fly larvae have specialized antennae for filtering plankton and bacteria from the water, and require a strong current. Most species are numerous in the decomposition and recovery zones of sewage outfalls and are generally indicative of at least moderate levels of organic pollution.

How have Landuses Affected the Quinnipiac River & its Tributaries?

The water quality of any waterway reflects both the landuses and the geology of its watershed (drainage area), in terms of the mix of chemical constituents, including metals, nutrients, and other pollutants of human origin.

Farms, Yards and Construction Sites

In colonial days up until the beginning of the 1900's much more of the land close to streams and rivers was cleared for farming. This meant soil and manure washed excessive nutrients into streams. Excess fertilizer and pet droppings, streamside clearing, and runoff from construction sites have similar effects. Less shade on watercourses usually means warmer water temperatures and lower dissolved oxygen levels, and fewer "sensitive" aquatic invertebrates. Riverbound Farm in Northeast Cheshire and the north part of Quinnipiac River State Park, in North Haven both had farms along the Quinnipiac River in the beginning of the century. Farming still affects water quality, especially by two major tributary streams on the east side of the watershed, Wharton Brook in Wallingford and the mid and lower Muddy River in North Haven.

Filling Wetlands

Filling wetlands in the upper watershed causes downstream flooding, and also summer low flow problems, as water storage capacity is diminished. This has happened along Harbor Brook in Meriden, and also along parts of Misery Brook in the southeast corner of Southington.

Industrial Discharges & Runoff from Impervious Surfaces

The extent of water quality impacts of point discharges from industrial landuses depends on the effectiveness of pollution regulations. Before the 1972 Clean Water Act was passed, industrial pollution was very severe along the mainstem of the Quinnipiac; only very pollution tolerant aquatic organisms could have survived. Pollutants left over from this era may still contaminate river sediment and riverside soils. Polluted ground water sometimes still seeps into waterways, especially in older manufacturing areas.

Industrial and commercial landuses and highways occupy much land area along the mainstem river, especially in Plainville, Southington, Wallingford, and in the lower watershed. Much of these areas are occupied by pavement and rooftops, which are non-absorbant. Pollutants like heavy metals, leaking vehicle fluids and fine dust from engine, tire, and road wear wash into catch basins and then into the river. Air pollution fall-out also washes off roads and roofs. Litter washes into catchbasins, though culverts, and then into streams. This nonpoint source pollution can be reduced by specially designed grassed swales, filter cartridges, and biofilter detention ponds, etc. Today, somewhat pollution—tolerantmacro-invertebrates, like midge larvae are common along the main stem Quinnipiac River, but not more pollution-sensitive creatures, like stoneflies and mayflies.

Forested Watersheds

Pollution intolerant creatures (stoneflies and mayflies) live in mostly forested cleaner upper tributaries of the Quinnipiac River, which drain off our trap rock ridges and off Mt. Southington, a granite-schist-gneiss ridge.

References:

Hilsenhoff, W. L. 1988. Rapid field assessment of organic pollution with a family-level biotic index. J. N. Am. Benthol. Soc. 7(1):65-68.

Plafkin, J. L, M. Barbour, K. D. Porter, S. K. Gross, and R. M. Hughes. 1989. Rapid Bioassessment Protocols for use in streams and rivers. US EPA. EPA/440/4-89/001

Map produced by the CT DEP

Developed and produced by ***Rema Ecological Services, LLC*** of Manchester, Connecticut, on behalf of the Quinnipiac River Watershed Association, for the River Resources Educational Series, and the Adopt-the-River Programs with funding from the Community Foundation for Greater New Haven and the CT DEP through the US EPA NPS grant under Section 3.19 of the Clean Water Act. Written by George T. Logan & Sigrun N. Gadwa. Available from ***QRWA***, 99 Colony Street, Meriden, CT 06418 (203-237-2237) for $8.00 ($5.00 for QRWA members and students).

ENVIRONMENTAL RISKS OF PESTICIDES IN A RESIDENTIAL SETTING

Sigrun. N. Gadwa, MS, Carya Ecological Services, LLC, Cheshire, CT January 2004.

INTRODUCTION

One often hears that modern pesticides are environmentally friendly, and that there is no longer much need for concern since applicators are trained and pesticides are regulated by the EPA and the CTDEP Pesticide Division, especially since the real "bad actors" like DDT have been taken off the market. However, a close look at the published data on specific pesticide products as well as more general studies of pesticide persistence in the environment, points to continuing risks from residential pesticide use.[1]

Several large-scale USGS studies pesticides have detected a variety of pesticide compounds in surface waters. A Michigan study reported that pesticide concentrations frequently exceed EPA maximum contaminant levels (MCL's) in streams and small rivers (but not in large rivers) during the spring season of heavy runoff (USGS 1997).[2] This occurs in watercourses with largely suburban/urban watersheds as well as in agricultural areas. Another big study in New York State (46 sites)[3] also found comparable levels and numbers of pesticides and their breakdown products in streams in suburban/urban and agricultural settings. This is evidence on a broad scale that pesticides do not consistently remain contained in the area where they are applied and *do* reach regulated aquatic ecosystems. Numerous studies have also shown a consistent pattern of diminished diversity of benthic macroinvertebrates in streams, corresponding to the extent of development in their watersheds. [4] Pesticide runoff is often suggested as a contributing factor.

Environmental risks vary widely depending on the properties of individual pesticides, such as toxicity, solubility, half life and on the setting in which they are applied, including the terrain, soil type, and proximity of catchbasins, streams and/or wetlands; and the time of year. A USDA guidance document[5] provided data on the

[1] Consideration of human health risks is not included here.

[2] US Dept. of the Interior. Geological Survey. 1997. *Pesticides in Surface waters*. National Water Quality Assessment (NAWQA), Pesticide National Synthesis Project. Fact Sheet FS 039-97.

[3] US Dept. of the Interior. Geological Survey. April 1997. *Pesticides in Surface waters of the Hudson River Basin, New York, and Adjacent States*. Fact Sheet FS 238-96.

[4] Morley, Sarah A. and James R. Karr December 2002. Assessing and Restoring the Health of Urban Streams in the Puget Sound Basin *Conservation Biology*.16(6) 1498-1509.

[5] USDA-NRCS National Water and Climate Center and US EPA Office of Pesticide Programs. March 2000. Conservation Buffers to Reduce Pesticide Losses.

need for stream buffers over 100 feet in width before highly soluble atrazine herbicides reached an acceptable concentration in groundwater; insoluble products were attenuated much more quickly.

The accompanying Table A12-1 lists several key pesticide properties, including toxicities, movement rating, half-life, solubility, and soil sorption coefficient for most of the active ingredients of insecticides, herbicides, and fungicides currently used in a residential setting, those readily available to homeowners as well as restricted use products, applied only by licensed landscapers. It was compiled from USDA and other Internet sources and government extension specialists. One to several brand names for each active ingredient is listed. (There are large numbers of brand names, many with several active ingredients, which keep changing.) The fine print on the pesticide container always includes the name of the active ingredients, and an Internet search for a pesticide brand name will usually provide a list of active ingredients. Refer to the end of the Residential Pesticides Properties Table A12-1 for explanatory text on toxicity ratings, the different pesticide mobility parameters, and links to the various Internet sources used in compiling the table. The following "primer" on pesticide risks will facilitate use of Table A12-1.

Pesticide Toxicity

Pesticides that do not reach wetlands and watercourses may have *indirect impacts on facultative wetland* and upland biota. Existing toxicity data (See Table A-2) shows that herbicides, insecticides, and fungicides are *often toxic to non-target organisms.* 99+% of all soil and garden invertebrates are harmless non-pests. Insects are the food-base foundation for the disturbance-tolerant wildlife community that persists in rural – residential zones and contributes to quality of life: spring peepers, songbirds, and rarely seen nocturnal creatures like the star-nosed mole also feed on invertebrates. Many songbirds that eat bird seed in winter need "bugs" in other seasons. Toxicity testing has emphasized fish and a few indicator aquatic organisms. Some data is available for additional organism groups (e.g. birds), but not for many pesticide compounds. There are wide ranges in susceptibilities among other different life forms, and testing of all potential targets is simply not practical or feasible. Subtle hormonal impacts are difficult to detect. Pesticide breakdown products may also be toxic, but only limited numbers have been tested.

Fungicides are widely variable in their toxicity ratings. Maneb is highly toxic to fish and non-toxic to bees. A widely used triazole turf fungicide (Triadimefon) is highly toxic to crustaceans – and probably also to other arthopod invertebrates, e.g. soil insects. The persistent and moderately soluble fungicide Thiabenzidole is very toxic to earthworms and moderately toxic to fish. However, Iprodine has a low toxicity rating for fish and birds, and a low movement rating. For fungicides, persistence is a key property, affecting the duration of disruption to the soil-root environment (turf fungicides) and duration of potential for harmful contact with foliage arthopods and their predators (tree/shrub fungicides).

Herbicides are generally less widely and acutely toxic than insecticides, but are usually very mobile, and are not without risk. Atrazine was among the compounds most frequently detected in Connecticut groundwater (Frink 1986).[6] This widely used agricultural herbicide is very similar to residential triazine products. Atrazine was found to affect the hormonal balance of leopard frogs at extremely low concentrations (changing males into females)[7] , which has been proposed as the reason for the rapid demise of this species in New England. The effects of other widely used triazine herbicides on other amphibians have not been systematically tested. Bensulide and Bentazon are toxic to fish and/or invertebrates. *Mode of application* affects the *quantities* used, and therefore potential risk from herbicides; for example cut-stump treatments or targeted foliar spraying of sprouts is recommended for triclopyr (Ortho-brush B-Gon) and glyphosate (in Rodeo and Roundup) by the Connecticut Invasive Plant Working Group. [8] Although these herbicides both have very low toxicity ratings for a variety of organism groups, highly targeted application limits even the potential for unforeseen subtle hormonal or chronic impacts

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[6] Frink, C.R. and L. Hankin. October 1986. *Pesticides in Groundwater in Connecticut*. Connecticut Agricultural Experiment Station Bulletin No. 839. Atrazine is an agricultural herbicide, but closely related herbicides such as Simazine are used in a non-farm setting.

[6] Research on hormonal alteration by atrazine was conducted by Tyrone Hayes at the University of California at Berkley, andwas reported in the April 2002 issue of Proceedings of the National Academy of Science. Does as low as 0.1 ppb induced feminizing changes; 3 ppb is the drinking water standard for Atrazine.

[7] Invasive Plant Management Guide on the web site of the Connecticut Invasive Plant Working Group (CIPWG) at http://www.hort.uconn.edu/cipwg/

Insecticides are formulated to control arthopods, and are therefore usually toxic to large numbers of insect species other than targeted pests. They impact major food sources for small mammals, birds, and tree frogs, both in vegetation and below ground. Even rapidly biodegradable pesticides may have longer lasting impacts due to disruption of existing communities. Most of the organophosphates and synthetic pyrethroids are also highly toxic to fish and often to birds. Seed-eating birds often consume pelletized pesticides. "Organic " alternatives with less toxic properties are included in Table A12-1. The *quantities* used influence the level of risk, which is obviously lower from application to a single infested shrub compared to treatment of a whole yard or lawn.

Pesticide Mobility

Potential for movement greatly influences the risk pesticides pose to off-site resources. Especially for the insecticides with high aquatic toxicity, this is a key property. Because broad-spectrum grub insecticides must penetrate the soil to be effective, they must have some mobility in the soil and moderate persistence, and therefore may affect not only the lawn itself, but also the soil in adjacent naturally vegetated areas. For example, Merit (with Imidochloprid) has a half-life of 48 to 190 days and moderate solubility in water. Grub insecticides and fertilizers are often applied in a *pelletized formulation*, which slows release, but is also vulnerable to being *washed downslope* during high intensity storm events. Such storms also dislodge *pesticides that adsorb strongly to soil particles*, for example diazinon, a toxic, persistent, hydrophobic organochlorine pesticide.[9] Likewise they dissolve soluble pesticides. Runoff may end up either in adjacent wetlands or setback areas, or may reach streams after flow into the street and thence into catchbasins and the storm drainage system. Several studies have shown elevated concentrations of hydrophobic organochlorine pesticides *after high surface runoff* (e.g. Hunt et al 1995[10]). Even well-designed, above-ground stormwater management systems do not have the capacity to treat most pesticides within a few days, because pesticide half lives are too long. (See Table A12-1).

Slope steepness and soils are key factors determining whether lawn runoff will infiltrate, or flow downhill as runoff. On a steep slope with shallow bedrock or hardpan, the shallow groundwater table often intersects the ground surface,

[9] Fisheries biologists at the CT Department of Environmental Protection, have attributed several fish kills to runoff from sloping lawns in residential neighborhoods.

[10] Hunt, Anderson, Phillips, Tjeerrdema, Puckett, and deVlaming. July 1999. Patterns of aquatic toxicity in an agriculturally dominated watershed in California. *Agriculture, Ecosystems, and the Environment*. 75(1/2): 75-91.

resulting in seeps and springs[11], which reduces the *travel time* through soil and therefore the effective width of the wetland setback in filtering/transforming pesticides or other pollutants, by means of a variety of biotic and abiotic processes.[12]

Lack of movement does not necessarily mean that a product is risk free. The fungicides and insecticide formulations applied to woody ornamentals usually include adhesive additives that reduce washing off. This also means their toxic effects (and potential to harm non-target organisms) may persist *in place* for extended time periods, although risks to nearby streams is low. If a pesticide has not degraded before leaf fall, residues on leaves may still be blown to vulnerable resources.

IMPACTS MINIMIZATION

Data is available to help select pesticides with minimal risk in a particular setting, but this involves complicated, careful analysis. Many data gaps remain relating to impacts on non-target organisms and impacts of breakdown products or the effects of interactions with other pesticides. Following are four potential approaches to minimization of pesticide impacts from landscaping:

1) *A Conservative Integrated Pest Management Plan* [13] emphasizes measures to promote healthy, disease-resistant growth and biological/ cultural controls, allowing very limited pesticide use, based on careful screening of pesticide properties, using predetermined thresholds, and targeted application methods. "Emergency" pesticide selection follows the site-specific USDA (WINPST) approach, considering pesticide movement potential in relation to soil, topography, and landscape properties.

2) *Organic landscaping* is less complicated to implement, although a fully "organic" approach may not always be acceptable to residents. Guidance documents are available. [14] Both these approaches not only protect downgradient wetlands and watercourses, but also provide safe foraging

[11] Ritter, Kochel and Miller. 1978, 1986, and 1995. *Process Geomorphology, 3rd Edition*. William C. Brown Publishers.

[12] Hemmond and Fisher. 1994. *Chemical Fate and Transport in the Environment*. Academic Press, San Diego. 337 pp.

[13] Many so-called IPM plans do in fact allow use of toxic products with potential to harm non-target organisms and fail to consider all pesticide properties, topography, soils, & local groundwater resources.

[14] *Standards for Organic Lawn Care – Practices for Design and Maintenance of Ecological Landscapes.* 2001. Organic lawn Care Committee of the Connecticut and Massachusetts Chapters of the Northeast Organic Farming Association (NOFA), PO Box 386 Northford, CT. Kimberly Stoner, PHD, Chair.

habitat for songbirds and other wildlife *within* a residential setting. Either of these approaches requires an organized residential community where landscaping is controlled by a single entity.

3) *Site design* is the appropriate approach for new projects where pesticide use by individual landowners cannot practically be regulated, e.g. a conventional subdivision with individually owned homes. Open space acquisition may be needed if resources are especially sensitive or valuable. In these situations, nearby watercourse resources (although not on-site fauna and flora) may be protected by broad setbacks to wetlands, especially where slopes are steep. Natural berms may protect resources from pesticide runoff, and low berms or grading can prevent lawn runoff from reaching storm drains, or optimally a by a “soft” street drainage system (without storm drains).

4) *Education* is a tool available to help individuals effectively use organic approaches and/or appropriately select low-risk pesticides when needed.

MUDDY WATERS

Quinnipiac River Watershed Association, River Resources Education Series

HOW DOES ORDINARY DIRT DEGRADE STREAMS?

Wherever the land is bare, erosion occurs. Without protective vegetation, leaf litter, and a stabilizing root network, pelting raindrops and flowing stormwater erode exposed soil particles. Muddy water reaches streams, ponds, and rivers, carrying a load of sediment.

Deposited sediment *buries aquatic habitat. It covers and clogs gravel spawning beds, increasing fish egg mortality, and it smothers stream bottom invertebrates, an important food supply for fish.* Stream invertebrates like stoneflies and mayflies live among rocks and cobbles, hiding in crevices. Water penny beetles and various kinds of caddisflies are attached to hard surfaces of stones and sticks. Sediment buries them along with the microscopic plants (diatoms) which also grow on these hard surfaces, and are eaten by aquatic "scraper insects". Sediment also covers the dead leaves eaten by "shredder insects." With less invertebrate food, there are also fewer fish, turtles, kingfishers, and herons in a sediment-choked stream or river.

Sediment deposits also make streams *shallower* so that they *heat up more quickly* and are able to *hold less oxygen;* they become less suitable for creatures like brook trout and stoneflies, which need cool, oxygen-rich water. (Some forms of aquatic life, like suckers and carp, midge larvae and aquatic sowbugs can tolerate low oxygen conditions.) With less space in the stream channel, over-bank flooding also happens more often, and bank erosion may increase, generating still more sediment.

Suspended sediment (muddy water) *impairs gill function* of fish and invertebrates. *Suspended sediment also blocks light and interferes with photosynthesis by underwater plants*, both macrophytes (larger plants) and microscopic plants like diatoms. *Muddy water reduces the hunting efficiency of fish* that locate prey by sight. However, some kinds of fish tolerate fairly high levels of turbidity. Suckers can seek food by smell and carp by using whisker-like feelers, more than by sight.

WHY WORRY? MUD ISN'T TOXIC AFTER ALL.

Although not toxic in itself, *eroding soil is rich in nutrients, such as nitrogen and phosphorus,* which in excessive amounts, have serious negative impacts on watercourses, ponds, and Long Island Sound. Nutrient rich water stimulates excessive growth of algae and aquatic vegetation. When the plants die and decompose, oxygen is consumed, sometimes leading to levels of oxygen too low to support most forms of aquatic life, a condition known as *hypoxia*. Excessive algal growth in streams - like actual sediment deposits - also smothers spawning areas and rocky habitat for stream invertebrates.

Many types of toxic pollutants adsorb readily onto soil particles. Air-pollution fall-out, dust from road and tire-wear, engine fluids, and chemicals in lawn run-off are sources of pollutants which attach to sediment particles. Very small quantities of metals occur naturally in soil, and in fact plants need them as trace nutrients. However, these metals and other compounds are harmful to aquatic life when present at too high concentrations. Deep sumps in roadside catch basins trap road sand. Unfortunately, sumps are often not regularly cleaned out, and sumps are not efficient traps for small-sized particles. Most toxic pollutants are attached to tiny particles, which settle out much more slowly than sand. Shallow, vegetated roadside drainageways (swales) and properly sized and designed wet-bottom detention basins are more effective at intercepting this form of pollution.

HOW DOES INCREASED RUNOFF AFFECT TURBIDITY?

All stream beds and banks naturally experience some erosion, and some sediment deposition. The outside of stream bends erode most, and deposition is greatest on the insides of curves, where water velocity is lower. This is related to centrifugal force, which draws water to the outside of a curve. But *accelerated bank and streambed erosion* result from higher volumes of runoff from impervious (non-absorbent) surfaces. This is a signficant source of excessive turbidity and sediment deposition, as well as shifting, unstable stream channels, in an urbanizing watershed. Stream erosion and downstream flooding are reduced if runoff is held in detention basins and slowly released.

DOES SEDIMENT ALWAYS HARM WETLANDS AND WATERWAYS?

A marsh or shallow pond with enough circulation, may be able to tolerate some sediment deposition and intermittent high turbidity better than a flowing stream. Marsh plants can take up many excess nutrients. Emergent wetlands are often "created" (excavated and planted) to help remove pollutants from urban storm water. They need an easy-to-clean forebay to trap sand, since too much sediment harms any wetland system.

HOW DO WE MEASURE SEDIMENT IN WATER?

It is easy to see when water is muddy and brown, but one can determine the severity of turbidity with a turbidimeter, which measures the amount of refraction by a light beam, giving results in "nephelometric turbidity units"or NTU's. Dirt in water is also often referred to as TSS, which stands for Total Suspended Solids, measured in milligrams per liter (mg/l).

QRWA volunteer monitors collect water samples during and after heavy rains, and turbidities are measured to document and identify erosion sources in the watershed. Samples are collected during a narrow window of time so that data from different stream sections is comparable, and the sampling station location, time and date are recorded. Any clean container may be used. It is important not to disturb the stream bottom while collecting, and to keep samples cool. Volunteers bring samples to a central location in each town for pick-up, and they are processed within 48 hours.

If elevated turbidity or sediment deposits are documented in a stream section, upstream watershed scouting can identify sediment sources.

QRWA volunteers on illegally placed fill by the Muddy River, a Quinnipiac River tributary.

HOW CAN WE MINIMIZE MUDDY RUNOFF?

Best Management Practices (BMP's) help protect aquatic habitat from muddy water. Look for them along streets, on farms, and at construction sites? * Regular *catch-basin cleaning* and *street sweeping* help keep winter road sand out of streams. * *Contour plowing, not plowing steep fields,* and leaving a vegetated *buffer strip next to streams and ponds* reduces farm erosion. * *Exposed soils* should be *stabilized promptly* with hay or fast-germinating grass. *Erosion-control matting* helps if slopes are steep. * Truck tires and construction equipment track mud onto roads. This is reduced by *"anti-tracking pads"*, beds of crushed stone at construction site entrances. * *Protecting catch-basins next to construction sites*, preferably with filter fabric silt sacks, reduces the amount of sediment reaching streams via storm sewers. * *Silt fences and hay bale rows should be properly installed and maintained* - no gaps, securely staked, trenched in at the bottom, and curved uphill at the ends so muddy water won't just flow around them; these barriers, alone, *can't handle runoff from large areas* of exposed soil. * For large construction projects, additional BMP's are needed. It helps to excavate one section at a time - an approach known as "*phased construction*". *Check dams* (hay bale or stone barriers in drainage swales) reduce the velocity of runoff. *Detention ponds, catch basin sumps, and specially designed swirl separators* are also used to settle out sediment, to reduce the amount reaching waterways. But all too often, they are not well-maintained, are too small, or have other design problems. Small sediment particles - which are the most harmful - settle out very slowly, taking as long as 36 hours. Runoff may in fact stir up previously settled mud in a detention basin and release it into streams.

Finally, wise *land use planning* helps prevent sedimentation, erosion, and turbidity from happening in the first place: 1) Protection of steep slopes and highly erodible soils as open space, 2) Development plans that include wide enough naturally vegetated buffers next to watercourses, and 3) Permits that stipulate state-of-the-art Best Management Practices. Citizen participation at public hearings helps encourage conscientious use of measures to reduce sediment discharges into waterways and keep our aquatic ecosystems healthy .

Report erosion & turbidity concerns to wetlands enforcement officers, who work in town Planning Departments. These officers report to Inland Wetlands and Watercourses Commissions. It is helpful to document observations with photographs and accurate notes. For help with follow-up, contact the QRWA.

Written by Sigrun N. Gadwa. Produced by the Quinnipiac River Watershed Association at 99 Colony St, Meriden, Connecticut 06451 and by the Habitat Workgroup of the Quinnipiac River Watershed Partnership in September 2000, with funding from the Hughes Foundation and from the Community Foundation for Greater New Haven.

Mary Mushinsky, executive director
QRWA
P.O. Box 2825
Meriden, CT 06450

May 29, 2009

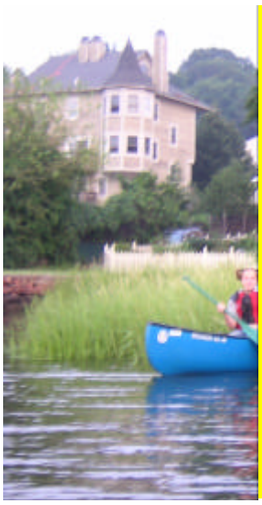
Dear Ms. Mushinsky;

The City of Meriden Parks and Recreation Department is pleased to work with QRWA to establish a demonstration riparian buffer at Baldwin Pond on Wall Street. The department will cease mowing within the protected area that QRWA has marked with fencing, allowing vegetation to grow and protect the banks of Baldwin Pond from runoff pollution and geese excrement.

We look forward to continued cooperation with QRWA on the project to restore buffers and improve the water quality of Harbor Brook and the Quinnipiac River.

Sincerely,

Mark Zebora
Director, Meriden Parks and Recreation



The Abridged

Greenway Landowners' Guide to the Quinnipiac River & its Tributaries:

A primer for the care of the Quinnipiac Greenway rivers and streams

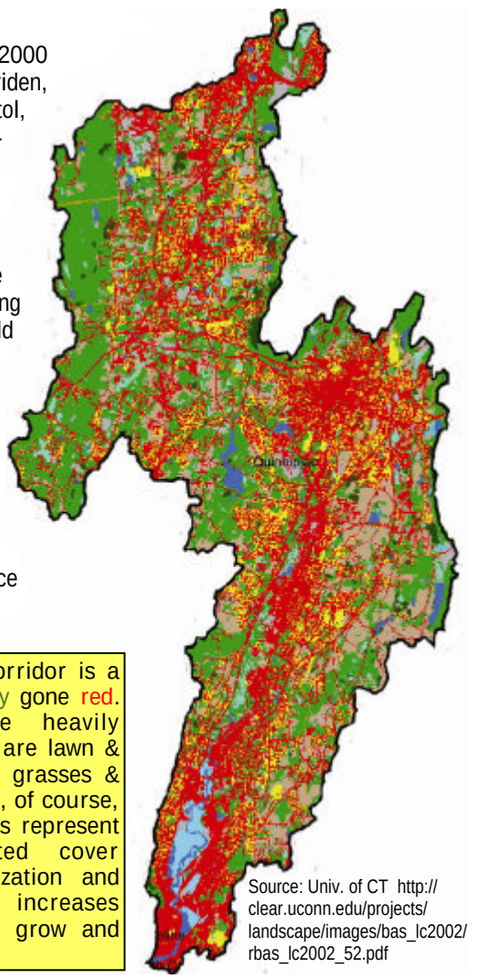
By Quinnipiac River Watershed Association 290 Pratt St. Meriden, CT 06450.
Written, designed and published by Mary Mushinsky & Illisa Kelman.
Funded in part by the CT DEP through a US EPA Clean Water Act Section 604(b) Water Quality Management Planning Grant. Printed by John L. Prentis & Co., Inc.

THE QUINNIPIAC WATERSHED & YOU

The Quinnipiac River Watershed covers 166 square miles, supports 226,000 people (2000 Census), and includes portions of Plainville, New Britain, Plainville, Southington, Cheshire, Meriden, Wallingford, Hamden, North Haven and New Haven, as well as smaller sections of Farmington, Bristol, Wolcott, Prospect, North Branford and East Haven. The watershed contains eight major sub-watershed: Eightmile, Tenmile, and Muddy rivers, and Misery, Broad, Sodom, Harbor, and Wharton brooks. In 2003, The State of Connecticut designated the Quinnipiac a State Greenway.

The Quinnipiac River provides the residents of its watershed with countless ecological, economic, and recreational resources, and supports diverse fish, bird and wildlife populations. However, more than a century of riverside manufacturing and poorly regulated municipal sewage fouled the waterways. By the 1990's, government regulation combined with declining manufacturing meant improved water quality. However, the watershed faced new development pressures as field and forest increasingly gave way to pavement and buildings. Nonpoint source pollution from residential and commercial properties and stormwater runoff has become an insidious offender.

QRWA has produced this guide to educate riverside residents on land management strategies that will help the Quinnipiac continue to improve. You and your neighbors, as waterfront landowners, manage some of the most critical land within the watershed for protection of water quality and wildlife habitat. QRWA has compiled this pamphlet for you because your property serves as the literal frontline between human impact and river systems, making you a *de facto* steward of this invaluable resource. Your land use decisions, and those of your neighbors, directly impact the rivers' well-being. Ecologically sound streamside maintenance will enable the river and its environs to benefit you in return.



The Quinnipiac corridor is a CT State Greenway gone red. Red areas are heavily developed, yellow are lawn & turf, tan is other grasses & agriculture. Water, of course, is blue and greens represent various vegetated cover types. As urbanization and suburbanization increases reds and yellows grow and greens shrink.

Source: Univ. of CT http://clear.uconn.edu/projects/landscape/images/bas_lc2002/rbas_lc2002_52.pdf

NONPOINT SOURCE pollution is that which cannot be traced directly back to a single location. It enters water courses via surface runoff and contaminated groundwater.

A BUFFER zone is a strip of vegetated land alongside and upslope of a watercourse or wetland that protects water quality, wildlife and aquatic habitat, and minimize flooding while maximizing groundwater recharge.

A WATERSHED is all of the land from which water drains into a particular body of water. Because watersheds, as most natural resources, are hydrologic units that ignore political boundaries, they are best approached via a regional perspective. Individual actions have the greatest impact if they are copied by other stakeholders throughout the watershed.

Pollution from runoff includes:

*** nutrients**
*** soil & sediment**
*** pathogens (e.g. bacteria)**
*** pesticides, herbicides, fungicides**
*** metals**
*** automotive fluids**
*** road de-icers**

*** litter & bulk debris**
*** heat**
*** household solvents**

THREATS TO THE QUINNIPIAC AND ITS TRIBUTARIES

Under natural and low-impact development conditions, forests and wetlands absorb a large amount of precipitation. Groundwater is thus recharged, pollutants are partially filtered, streambanks are protected from erosion, and aquatic communities remain intact. Urbanization has reduced the area of forests and wetlands with their water and pollutant-absorbing vegetation, replacing them with impermeable surfaces in the forms of buildings, roads, and parking lots. These impervious surfaces dramatically reduce infiltration and increase runoff, the primary transport mechanism for nonpoint source pollution. With the high percentage of paved and built surfaces along the Quinnipiac and water diverted for residential and commercial use, flash floods have become common, as evidenced by sections of severely eroded streambanks and nonpoint source pollutants from surface runoff. When homes surrounded by paved surfaces like driveways and cement patios, sprinkler and garden hoses also transport polluted runoff if they are not used with great care.

Sources of runoff pollution include:

*** pet waste**
*** farms**
*** lawns & yards**
*** roadways & parking lots**
*** roofs**
*** poorly maintained septic systems**
*** construction sites**

*** deforestation**
*** household hazardous waste**

DO-IT-YOURSELF BEST MANAGEMENT PRACTICES (BMPs) for streamside landowners

BMPs for your property: *PRACTICE SUSTAINABLE LANDSCAPING AND LAWN CARE*

- ***Use organic lawn care***, or hire a gardening company that does; do not use petroleum-based fertilizers;
- When mowing, ***leave your grass clippings on the lawn;***
- **Practice sustainable property maintenance and repair:**
  - ***control runoff and improve drainage***;
  - ***reduce impervious surfaces - use permeable paving material*** for driveways and patios;
  - ***stabilize disturbed slopes*** with hardy vegetation and mulch;
  - ***minimize lawn and maximize native trees and shrubs*** - **this will also keep geese to a minimum**, as they are attracted by the combination of water and grass;
  - replant on bare soil as soon as possible;
- If you live on the sewer grid, ***advocate for public work fixes*** such as separating sewer and storm overflow systems, public rain gardens and swales to replace gutters;
- If you live off the sewer grid, ***properly maintain your septic system***::
  - have it pumped out every 2-3 years and serviced regularly
  - conserve water;
  - use non-caustic household cleaners and properly dispose of hazardous waste;
  - compost rather than use a garbage disposal;
  - do not park or drive over your system;
  - plant only herbaceous plants over your system;
  - direct runoff away from leaching field .

STREAMSIDE BUFFER CONSERVATION AND RESTORATION **is one of the most important actions (BMP) you can take.** Riparian buffers protect the adjacent land and water quality by preserving floodplain and streambanks, permitting infiltration of rainfall and snowmelt and filtering runoff. They provide habitat for wildlife, reduce flooding, and protect aquatic habitat by moderating water temperature and reducing sedimentation.

BMPs at home : *PRACTICE SUSTAINABLE HOME, CAR AND PET CARE:*

- ***install water-saving devices***: Quinnipiac rivers and streams contribute to our public water supply - water conservation keeps them flowing;
- ***increase infiltration*** by directing rain gutters into vegetated swales, rain gardens or dry wells, and create gravel ditches around paved driveways and patios;
- ***safely store and dispose of hazardous products*** (read all labels) - dispose of unwanted house hazardous materials at your municipal hazardous waste collection facility on hazardous waste collection day;
- better yet, ***choose environmentally friendly household cleaning products***, such as Ecover and Seventh Generation brands, available at most supermarkets, or make your own (see reference urls);
- ***wash your car on your lawn***, not on your driveway or in the street - grass filters some of the pollutants, and permits some infiltration, thereby reducing runoff into the storm drain;
- ***never dump anything into a storm drain*** - many lead directly to our streams;
- ***recycle everything that can be recycled***, including used motor oil and antifreeze;
- ***pick up your pet waste*** and put it in the trash.

RESOURCE LIST: IDEAS ON HOW TO IMPLEMENT THESE SOLUTIONS
For easy directions on how to implement these do-it-yourself solutions, turn on the computer and go to one of the addresses to the right. Our list is but a small sample of the resources that are available.

General homeowner stormwater management solutions:
www.soil.ncsu.edu/assist/homeassist/stormwater

Runoff information:
www.dep.state.ct.us/olisp/coastalnonpoint
www.epa.gov/owow/nps
nemo.uconn.edu/tools/reducing_runoff/runoff.htm

Pervious pavement
nemo.uconn.edu/tools/impervious_surfaces/index.htm
www.millermicro.com/porpave.html

Bioretention / Rain gardens:
www.epa.gov/owow/nps/bioretention.pdf
www.ct.nrcs.usda.gov/eln-educational_materials.html
clear.uconn.edu/raingarden/raingarden.htm

Vegetative buffers:
www.crjc.org/riparianbuffers.htm
www.dep.state.ct.us/olisp/manual/manualsection3.pdf
www.ct.nrcs.usda.gov/plants.html www.ct-botanical-society.org
www.qrwa.org/Publications/StreamsideWoods.pdf

Government support for riparian habitat conservation:
www.ct.nrcs.usda.gov/programs/whip/whip.html
dep.state.ct.us/burnatr/Wildlife/geninfo/fedaid/lip/lip.htm

Lawn care / landscaping
www.nofamass.org/programs/landcare/index.php
www.qrwa.org/Publications/pesticide_table.pdf
www.branfordlandtrust.org/sustainablegarden.html
www.uri.edu/ce/healthylandscapes/raingarden.htm
www.infinetivity.com/~stack/rain/
dep.state.ct.us/burnatr/Wildlife/pdf/ntvtree.pdf

LEGAL AND REGULATORY TOOLS AND TAX BENEFITS

The best protection against pollution from an increasingly urbanized landscape is undeveloped land along rivers and streams. As a landowner, you can protect and restore clean water and wildlife by permanently conserving your land. Although increasing property values and high taxes make selling land at market value an attractive option, landowners may reap financial benefits from protecting your property in perpetuity. Assembled below are some tools available to help you. For a more in depth guide, see the full length handbook available from QRWA.

PARTNERING GROUPS
Land Trusts: A land trust– a non-profit whose mission is to conserve open space– can help a landowner qualify for a variety of tax benefits. A land trust can accept land, bequests, or conservation easements, or act as the land steward. Land trusts within the Quinnipiac watershed include:

Farmington Land Trust: **www.farmingtonlandtrust.org**
Prospect Land Trust: **www.prospectct.com/leisure/land_trust.htm**
Cheshire Land Trust: **www.cheshirelandtrust.org**
Meriden Land Trust: **www.meridenlandtrust.com**
Wallingford Land Trust: **www.alcasoft.com/wlt/index.html**
North Haven Land Trust: **(203) 234-2948**
Hamden Land Conservation Trust: **(203) 248-7607**
North Branford Land Conservancy Trust: **(203) 777-7381**
East Haven Land Trust: **www.easthavenlandtrust.org**
New Haven Land Trust: **www.newhavenlandtrust.org**

Municipal partners
Two sections of state statutes allow municipalities or their boards and commissions to acquire conservation easements from landowners. **CGS Sec. 7-131 b,** dealing with **Public Act 490** (see Farm Conservation, below); and **Sec. 47-42a through c**, the series pertaining to land titles.

FARM LAND CONSERVATION TOOLS
Federal
Farm and Ranch Lands Protection Program provides cost-share assistance to help state, towns and land trusts, purchase development rights. Qualifications include active farming, agricultural soils or historic or archaeological resources. See American Farmland Trust:: **ww.farmland.org.**
NRCS G**rassland Reserve Program: www.ct.nrcs.usda.gov/programs/GRP/**

Farm Services Agency (FSA) www.fsa.usda.gov/ct
State
CT Farmland Preservation Program (www.ct.gov/doag) is CT's purchase of development rights (PDR) program. Qualifications include 30 acres of cropland and a high percentage of agricultural soils. See also Connecticut Farmland Trust at **www.ctfarmland.org**.
CT DEP's **Open Space and Watershed Land Acquisition Grant Program** for land with highly diverse natural resources: **dep.state.ct.us/rec/openspace/opensp31.htm**
Forest Legacy Program: USDA, in cooperation with CT DEP / Division of Forestry: **www.ecfla.org/articles/forestlegacy.htm**
Local
CT Public Act 490 permits farm and forest land to be assessed at its current use value rather than its "highest and best use" (as developed land) for purposes of local property taxes. Eligible land remains so until the use changes or the land is sold.

Is your municipality actively protecting your waterways? See the Housatonic Valley Association's River Report Cards offering river and water quality protection tools. One for permit applicants:
www.hvatoday.org/tools/Ace%20Applicants%20brochure.pdf

TOOLS FOR LAND CONSERVATION
Conservation easement is a legal agreement between the landowner and a land trust, municipality or government agency that permanently protects the land through a deed restriction. The landowner - current and future - gives up some development rights in order to protect its conservation values. Easements may apply to part or all of a property; allow or restrict public access; and may be donated or sold.
Donation of land to a land trust or municipality. The donation may allow the donor lifetime use of the land (donating a remainder interest or donating by will); receive a life income (charitable gift annuity), or attach a conservation easement and establish a trust for beneficiaries (charitable remainder unitrust).
Bargain sale-Selling land to a land-holding non-profit or government for less than its fair market value can provide immediate cash and tax benefits to the landowner.

TAX BENEFITS FOR LANDOWNERS who conserve land (August 2006)
Lowering the market value of property reduces the associated tax burden. The amount and type of tax benefits depends the choice of legal tool, the value of the property, the landowner's income level, and the total amount of the landowner's estate. See QRWA's library, and also Land Trust Alliance at **www.lta.org**.
Federal income tax deduction: In August, 2006, the deduction for donating a conservation easement in 2006 or 2007 increased from 30% to 50% of income, and the carry-forward time period for tax deductions for conservation easements increased from 5 to 15 years.
State business tax credits-Public Act 99-173 benefits a company that donates or sells land at a discount under CT's open space program.

Public Act 99-235 makes donations by businesses to open space acquisition funds eligible for tax credits under the Neighborhood Assistance Act.
Municipal property tax reduction applies if a conservation easement attached to the land has permanently reduced its market value.

Farmland Tax Considerations are similar to those of residential property, and the choice of tax reduction tool is a complex decision dependent on multiple factors. The donation or sale of an agricultural conservation easement provides similar tax advantages to those discussed above.

MUNICIPAL REGULATIONS TO PROTECT WATERCOURSES
Under the CT Inland Wetlands and Watercourses Act, each municipality regulates proposed developments in or affecting its wetlands and watercourses. Construction and development are not prohibited, but local wetland agencies may evaluate and regulate activities in the 100-foot upland review area. Mounting scientific evidence suggests that protection of a broad riparian area is critical. CT DEP supports a minimum 100-foot vegetated buffer to protect wetlands. See www.caciwc.org.

And one for municipal commissions:
www.hvatoday.org/publications/Ace%20Commission%20Brochure.pdf

New class system could dry up Quinnipiac River's chances for revival

By: By: Andrew Perlot | Posted: Tuesday, January 12, 2010 12:00 am |

MERIDEN - Can the state write off the Quinnipiac River as a lost cause?

It happens almost every summer: The rush of the Quinnipiac, which runs through Southington, Meriden, Cheshire and Wallingford, slows to a meander.

As rainfall lessens, residents draw from the river to water lawns, golf courses and crops in addition to the usual industrial and residential uses. As the water level drops, boating becomes a challenge, fishing isn't much fun and the web of animal life dependent on the waterway is stressed.

It was this problem that got state Rep. Mary M. Mushinsky, D-Wallingford, along with a host of other legislators, to pass Public Act 05-142 in 2005, which called on the state Department of Environmental Protection to manage the use of water to lessen the impact during the summer.

So it was a surprise to Mushinsky in October when its proposed stream flow regulation included four classes to which it will assign rivers. Class 1 is for pristine rivers that will be heavily regulated, while Class 4 is for heavily used urban rivers, for which the DEP would make little attempt to alter the status quo. The other two classes fall in between.

No one knows what rivers will be placed in what category - the classifications would come after the regulations are accepted - but Mushinsky wonders why there is a Class 4 at all.

"We're afraid that (Class) 4 was made for rivers like ours," said Mushinsky, who also is executive director of the Quinnipiac River Watershed Association, based in Meriden, which is trying to restore the river after decades of pollution and overdrawing of water during the region's industrial heyday.

"It's basically a write-off, or a dismissive category," Mushinsky said Tuesday. "It means that all the past grievances against the river won't be addressed. That's not acceptable to us. We believe that every river has a chance to come back."

One of the goals of the QRWA is to restore the ability of fish to migrate along the river, and the last remaining obstacle to that is Wallace Dam in Wallingford, Mushinsky said, where the QRWA is working with the town to install a "fishway" to allow for migration and spawning.

All that work, and the work of decades before, will be for naught if the river is classified as a Class 4, she said, meaning that the state will never attempt to keep enough water in it to allow animal life to thrive.

The higher-classed rivers will have conservation measures put in place, such as restoration of aquifers. When less surface area is paved, aquifers can be refilled, Mushinsky said. These aquifers gradually drip water into rivers, even in the dry season, while runoff water from paved surfaces quickly enters the river during the rainy season only.

Other measures the regulation proposes are for conservation, such as not running lawn sprinklers during the height of summer.

Margaret Miner, executive director of the Rivers Alliance of Connecticut, a nonprofit environmental advocacy group, agrees with Mushinsky that the DEP will likely try to stick the Quinnipiac in Class 4 along with other heavily used urban rivers.

There's already precedent, she said, with the state listing the Quinnipiac and many of its tributaries in reports to the federal government mandated by the Clean Water Act as impaired water bodies in which aquatic life has a hard time surviving.

"Environmentalists are afraid that too many rivers will fall into a Class 3 or Class 4," she said. "Water utilities are afraid that they won't. The Quinnipiac is a river that might have some problems in that respect."

The DEP's rationale for creating a category in which the status quo is accepted is that there are limits to the balance that can be achieved between humanity and nature, said Betsey Wingfield, chief of the department's Bureau of Water Protection and Land Reuse.

"We need to balance the needs of society as a whole with protections of our streams and rivers," she said. "Class 4 is recognition that achieving true ecological sustainability (in some areas) is not achievable."

Wingfield stressed that rivers may be classified separately from their tributaries. She also said that once the regulation is accepted, in whatever form, the public in every area would have a chance to weigh in on the classifications of the rivers.

The DEP will host an informational session Jan. 20 at the Wallingford Public Library, 200 N. Main St., from 7 to 9 p.m., so members of the public can get an explanation of the proposed regulation. It will then hear public comment on the regulation Jan. 21 at DEP headquarters, 79 Elm St., Hartford, from 9 a.m. until the last comment is heard.

Municipalities are still trying to get a grip on the proposed regulation and how it would impact the area.

Erin O'Hare, environmental and natural resources planner for Wallingford, said she'd attend the Jan. 20 meeting to hear more about how the town might be affected. The QRWA is

urging area residents to attend.

It's possible the new regulation would "institutionalize what already exists" in terms of water overuse, O'Hare said.

"I'm interested in what they base their classifications on," she said. "How do you get to be a Class 4?"

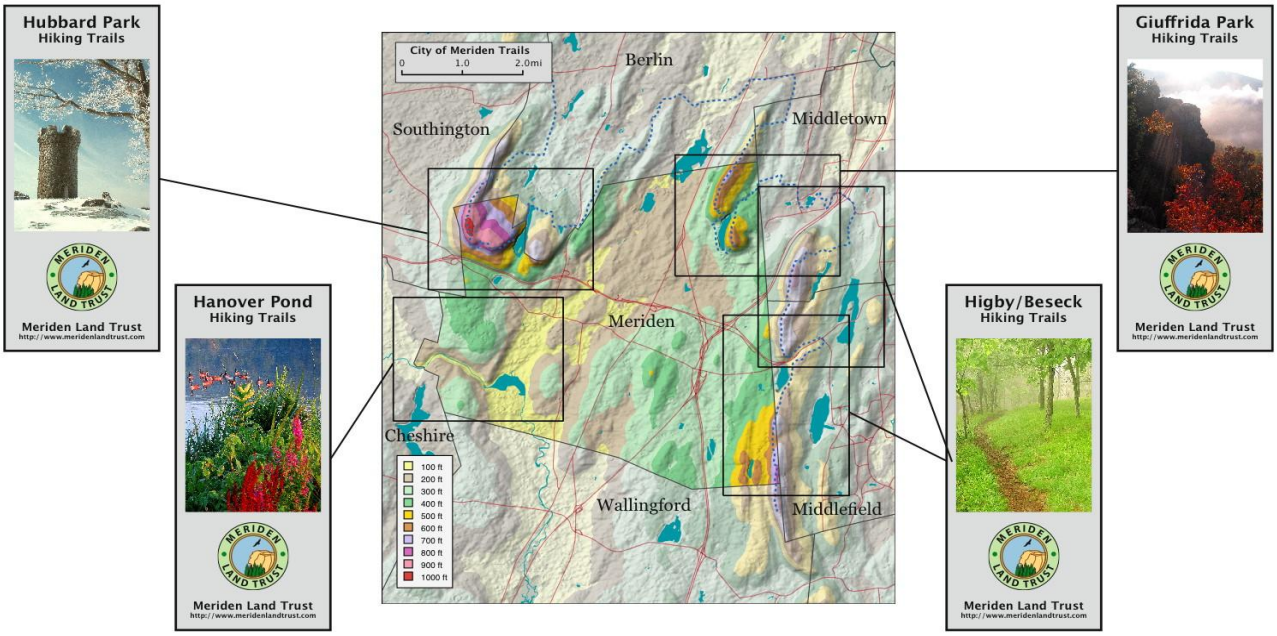
Southington Town Engineer Anthony Tranquillo also wants to learn more, and said any new regulations could cause significant complications for the town's Water and Sewer departments, which draw from the river.

After hearing public comment, the DEP will make any necessary changes and then hand the proposed regulation over to the General Assembly's Regulation Review Committee for review, Wingfield said. After its approval, the department will begin classifying rivers, with public input.

aperlot@record-journal.com

(203) 317-2234

Meriden Land Trust says: "Take a Hike!"



The Meriden Land Trust has created FREE brochures with maps and hiking trail descriptions centered on four parks or regions in Meriden.

Hubbard Park Hike destinations include Castle Craig, the Halfway House, West Peak and South Mountain.
Giuffrida Park Hike destinations include Mount Lamentation, Chauncey Peak, and a wetland meadow in the upper reaches of Harbor Brook.
Hanover Pond Hike destinations include both the Phase I linear trail (The Quinnipiac Gorge Trail) and the planned Phase II trail along Sodom Brook.
Mount Higby/Beseck Mountain Hike destinations include overlooks from both Mount Higby and Beseck Mountain, Power Ridge, and more.

The shaded relief map, with each shade of color representing a 100 ft change in elevation, is courtesy of Dwight Needels. Photographs are courtesy of Bob Pagini.
Visit our web site at **http://www.meridenlandtrust.org** for more information about these free brochures and our consolidated trail guide.

About the Maps

These maps were created using open source software, Geographic Resources Analysis Support System (GRASS). The background is a shaded relief map generated from National Elevation Dataset (NED) data obtained from the United States Geological Survey (USGS),. reproduced at a scale ranging from about 1:17,000 to 1:26,000. Each shade of color represents a change in elevation of 100 ft. Map overlay data were obtained from USGS 1:24,000 scale topographic maps, with GPS field corrections for some brooks.

The location of each trail and landmark was determined from GPS tracks and waypoints recorded during the year 2009. Note that portions of blazed trails may have been relocated since them.

For additional information on the National Scenic Trails in and around Meriden (the Mattabesett Trail and the Metacomet Trail) or for information, photos and activities on the trails and waterways around Hanover Pond, please visit the web sites for the Connecticut Forest & Park Association (CFPA), Meriden Linear Trails, the New England National Scenic Trail and the Quinnipiac River Watershed Association (QRWA).

Suggested Hikes

The hikes described in these brochures range from hikes you could take on a lunch break to hikes that will take you all day to complete. You will soon find your own favorite hikes, but to get started, download this table of suggested Meriden Hikes. Start with the hikes labeled "Easy" with relatively small elevation changes, and work your way up as you become comfortable. The time estimates are a rough approximation; the actual time required will depend on how fast you walk and your general fitness level.

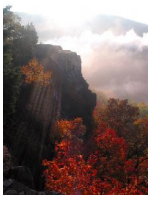
Get a Copy of the Brochures

You can also pick up a free printed copy of the four brochures at any Meriden Land Trust meeting or event, outside the mayor's office at Meriden City Hall at 142 East Main St., at the Meriden Parks & Recreation headquarters at 460 Liberty St. or at the CFPA bookstore at 16 Meriden Rd. (Rt-66) in Rockfall (a part of Middlefield). For more information, email us at mlt@meridenlandtrust.com.

Download the Brochures

Right-click one of the links below and save the attached file to your hard drive. The files are .pdf, which can be opened in Acrobat Reader and many other programs. The Hubbard Park and Giuffrida Park brochures are designed to be printed on Legal size paper (11" x 14"), but can be printed at reduced size. The Hanover Pond and Higby/Beseck brochures are designed to be printed on Letter size pater (8.5" x 11").

[Higby/Beseck Hiking trails]



[Giuffridda Park Hiking Trails]

[Hubbard Park Hiking Trails]

[Hanover Pond Hiking Trails]

photos by Bob Pagini

[click to return to home page]

Meriden council approves Finch Ave. purchase

By: George Moore | Posted: Tuesday, May 4, 2010 1:47 pm |

MERIDEN - The City Council on Monday authorized the purchase of 628 Finch Ave. with local and state money, stating that the property will serve as valuable open space.

The council authorized City Manager Lawrence J. Kendzior to pursue a Department of Environmental Protection grant to help pay for the 2.54-acre property. The city and the owner have reached an approximate sale price of $42,000, though the grant will pay up to 65 percent of fair market value.

Kendzior and several councilors said the property will serve open space goals, since it is next to the Quinnipiac River and the linear trail. While the property is on a steep slope, Kendzior said one of two appraisals the city commissioned concluded that the parcel could be developed.

Walter Shamock, the only councilor to vote against the acquisition, stated that the property should be left on the tax rolls. He added that the property probably could not be developed, due to the topography.

Meriden Christmas tree collections have begun

By: By: Andrew Perlot, Record-Journal staff | Posted: Tuesday, January 12, 2010 12:00 am |

Meriden - The Department of Public works has begun picking up Christmas trees.

Anyone wanting theirs picked up should place their tree on their front lawns, just beyond the edge of the road. They must not be wrapped in plastic or have decorations on them.

The collection is random, and continues through Jan. 29. No appointment is necessary.

Inner tax district gets new recycling barrels

By: Dave Moran | Posted: Thursday, July 1, 2010 10:48 pm |

Online Features Links

MERIDEN - Blue plastic barrels began lining curbs in the inner tax district this week as residents make the switch to single-stream recycling.

The new system allows residents to place all of their recyclables into one container and ends the process of sorting and separating paper from plastic. Residents of the inner district pay a slightly higher tax rate - 31.43 mills, compared to the outer district's 29.53 - for recycling service and for trash removal. The city contracted with All Waste Inc., a Hartford-based company, to provide the service after a public bidding process, and has budgeted $299,258 for the expense for the fiscal year, which began Thursday.

"Basically, it was plastic and glass in one, and newspapers in another," Public Works Director Robert Bass said of the previous collection method, which required residents to sort and separate recyclables into separate 14-gallon containers. "Now you can put all of your recyclables into a single container."

Since the new receptacles are larger - 96 gallons - and the process requires less work, Bass said he expects the rate of recycling in the inner district to increase. His department has distributed almost 7,500 containers to residents.

"Statistics have shown that with the implementation of single-stream, the volume goes up dramatically," Bass said. "People find it easier."

But the new method may require some adjustment. Bass said his office has been inundated with phone calls since his department began distributing the new receptacles several weeks ago.

"The phones here at City Hall have not stopped ringing since we started bringing these cans out two weeks ago," Bass said. "There's a lot of people who have never recycled, so we're getting calls from them saying, ‘What am I supposed to do with this big blue bin?' "

Recyclable materials include corrugated cardboard, newspapers and magazines, as well as plastic bottles, metal cans and glass jars that have been thoroughly cleaned. Items that cannot be recycled include packaging materials, light bulbs, bottle caps, brown manila envelopes and wrapping paper.

Bass stressed that recycling receptacles that contain unrecyclable materials or household waste will not be collected.

"Those blue bins are supposed to be recycling only," he said. "If somebody puts regular trash in there, it's not going to get picked up."

Calls to All Waste Thursday were not returned, but Bass said he spoke with the city's account manager at All Waste and that the general feedback the first day under the new system is that it went "OK."

"I talked to the guys from All Waste about 9 o'clock or so this morning, and there were cans that had regular household garbage in them, which is what we expected," Bass said. "But we were quite pleased to see as many cans out as we did that were correctly used."

Paul Nonnenmacher, a spokesman for the Connecticut Resources Recovery Authority, the state's largest trash disposal agency, said that when CRRA began offering single-stream recycling to the cities and towns it covers in 2008, the agency saw its recycling rate increase dramatically.

"From the data that we have, our recycling tonnages are going up, and they've gone up significantly since we gave towns the opportunity to use single-stream," Nonnenmacher said. "Towns have been jumping all over it."

Through its mid-Connecticut project, Nonnenmacher said, CRRA offers single-stream recycling to about 60 cities and towns in the Hartford area, although Meriden is not among them. Meriden has a separate trash disposal agreement with Covanta Energy to use the trash-to-energy plant on South Cherry Street in Wallingford, while the city sends its recyclables to the Berlin Municipal Recycling Center on Town Farm Lane in Berlin.

Curbside recycling service in the city's inner district is provided every two weeks. For more information, call the Public Works Department at (203) 630-4018.

dmoran@record-journal.com

(203) 317-2224

Transfer Station

The City of Meriden, Public Works Department operates and maintains the bulky waste Transfer Station. The Transfer Station is located on Evansville Avenue, opposite the Meriden Markham Municipal Airport and immediately south of the Meriden Water Pollution Control Facility. For information on the Transfer Station call 203.630.4018.

At the Transfer Station, we accept the following items:

- White Metal
- Leaves (in paper bags - no duct tape) and no plastic bags
- Brush (no larger than six inches in diameter, two feet long)
- Bulky Waste (couches, furniture, etc)

Regular household solid waste (trash) and recyclable items with the exception of electronic waste listed below, are not accepted at the Transfer Station.

Transfer Station hours of operation are Monday 7:30 a.m. to 11:30 a.m., Wednesday 10:30 a.m. to 2:30 p.m. and every 1st and 3rd Saturday of the month from 7:30 a.m. to Noon.

There is no fee to drop off brush or leaves!

Transfer Station fees are per vehicle, per use, non-commercial vehicles only, payable at the Transfer Station.
We accept cash and checks. Checks must have your phone number printed on them.

Vehicle	Cost
Car / Minivan / SUV	$20.00
Pickup Truck	$40.00
Large Truck	$80.00

E-waste: The Electronic Items listed below may be deposited at the transfer station during normal business hours at no cost.

Monitors, CPUs, Batteries (non lead acid), IPods, PDA's, Cell Phones, Fax Machines, CRTs, Terminals, Stereos and Radios, Toner Cartridges, Printers, Keyboards, Copiers, Telephones, Cables, VCRs, Modems, Mainframes, Typewriters, Laptops, Lab Equipment, Test Equipment, Inkjet Cartridges and Televisions.

Construction and demolition debris can be delivered to CWPM, 475 Christian Lane, Berlin, CT. They may be reached at 860-828-1162. Hours of operation are Monday through Friday, 5:00am to 3:30pm, and Saturdays, 5:00am to 10:30am. A fee is associated with the

disposal of these products.

Back to Top Printer-Friendly Version

MERIDEN LANDFILL
EVANSVILLE AVE., SOUTH MERIDEN, CT. 06451
203-630-4254

ITEMS ACCEPTED:

- BRUSH ~ BRUSH **NO** LONGER THAN 4' LONG, 6" IN DIAMETER
- LEAVES ~ **IN PAPER BAGS ~ LEAVES IN PLASTIC BAGS MUST BE EMPTIED**
- BULKY WASTE: FURNITURE, BEDDING, BUREAUS, TABLES, CHAIRS, SOFAS AND CARPETING
- WHITE METALS: APPLIANCES, BICYCLES, PROPANE TANKS ~ **WITH VALVES REMOVED**
- TIRES (WITHOUT RIMS)
- LAWNMOWERS ~ **WITH FLUIDS REMOVED**

ITEMS NOT ACCEPTED:

- HOUSEHOLD GARBAGE
- COMMERCIAL VEHICLES
- EXPLOSIVES, AMMUNITION
- HAZARDZOUS WASTE, PAINTS
- CLOTHING
- CONSTRUCTION DEBRIS, ROOFING MATERIALS
- WOOD
- TREE STUMPS, BUSH STUMPS, ROOTS, ROOT BALLS
- GRASS CLIPPINGS
- GASSES, OILS, ANTI-FREEZE
- EXCAVATION MATERIALS (ASPHALT, STONE, ETC.)
- OIL TANKS
- ITEMS FOR RECYCLING, FILL, AUTO AND TRUCK PARTS
- CARDBOARD

Effective Monday, July 14, 2003, the Meriden Landfill will initiate a charge for disposal of bulky waste. Fees are: Passenger car - $20.00; Pick-up truck - $40.00; Large truck (dump, etc.) - $80.00. Fees are per vehicle per use!! Non-commercial vehicles only!! Leaves and brush accepted from any non-commercial vehicle for no charge. Coupons for dumping are available for purchase at the Landfill during opening hours, or the Parks and Recreation Office, 460 Liberty Street, from 7:30 a.m. to 4:00 p.m., Monday through Friday. Cash or checks payable to the City of Meriden are acceptable forms of payment.

- *CAR OIL - UNITED OIL RECOVERY, GRACEY AVE. MERIDEN, CT – 203-238-6745*
- *CONSTRUCTION DEBRIS ~ C.W.P.M., 475 CHRISTIAN LANE, BERLIN, CT - 860-828-1162*

LANDFILL HOURS

MONDAY ~ 7:30 A.M. – 11:30 A.M.; WEDNESDAY ~ 10:30 A.M. – 2:30 P.M.

1ST AND 3RD SATURDAY 7:30 A.M. – 12:00 P.M.

CURBSIDE RECYCLING GUIDE

In the Tunxis Recycling region, one bin is used to collect all recyclable materials. Items may also be placed in either the red or blue round pails for those residents still using pails.

Place your recycling container at the curb the night before your recycling collection day. Paper/cardboard may be wet with rain or snow. Do not leave at the curb for more than one day.

NOTE: Not all towns recycle all of these items. Additional items may also be collected at drop-off locations. For more specific instructions check with your town's recycling coordinator.

BERLIN	(860) 828-7022
BRANFORD	(203) 488-8394
BRISTOL	(860) 584-6124
BURLINGTON	(860) 673-2439
HARTLAND	(860) 653-6800
MERIDEN	(203) 630-4018
MORRIS	(860) 567-7438
NEW BRITAIN	(860) 826-3350
PLAINVILLE	(860) 793-0221 x210
PLYMOUTH	(860) 585-4030
PROSPECT	(203) 758-4461
SEYMOUR	(203) 888-2511
SOUTHINGTON	(860) 276-6200
WARREN	(860) 879-9030
WASHINGTON	(860) 868-2259
WOLCOTT	(203) 879-8100

Or call Tunxis Recycling Operating Committee at
860-585-0419 or
860-225-9811
www.tunxisrecycling.org

TUNXIS RECYCLING

YES Place in Curbside Bin

CLEAN FOOD & BEVERAGE CONTAINERS

Must be cleaned and rinsed

Including laundry detergent and shampoo bottles

PAPER

- Newspapers
- Magazines
- Catalogs
- Junk Mail
- Office Paper
- Cereal Boxes

GLASS AND METAL FOOD & BEVERAGE CONTAINERS

Must be cleaned and rinsed

PLASTIC CONTAINERS

- Must be cleaned and rinsed
- #1 - #7 **NEW!**

CORRUGATED CARDBOARD

Folded flat to 2'x3'

NO

TRASH

- Ceramics
- Appliances
- Household rubbish

AEROSOL CANS

PRESCRIPTION DRUG CONTAINERS

SHARPS

- Knives
- Light Bulbs
- Mirrors
- Syringes/Needles *Require special handling*
- Window Glass

PLASTIC BAGS

Recycle at Supermarket

TOXIC FLUIDS

- Antifreeze
- Motor Oil
- Household Cleaners
- Pesticides
- Paint Cans

WHY RECYCLE?

- Saves Money $
- Conserves Natural Resources
- Reduces Greenhouse Gas Emissions
- **Reduces Carbon Footprint!**

SPANISH TRANSLATION OF INSIDE COPY

GRANDE O PEQUEÑO
RECICLAJE CONJUNTO = ¡TODO EN UNO!

En las zonas de Reciclaje Tunxis se utiliza un solo contenedor para recolectar todos los materiales reciclables. Los residentes que todavía utilizan baldes pueden colocar los materiales tanto en los baldes rojos como en los azules.

Coloque su contenedor de reciclaje en la vereda la noche anterior a la fecha de recolección de los materiales para reciclar. El papel/cartón se moja con la lluvia o la nieve. No lo deje en la vereda por más de un día.

NOTA: No en todas las ciudades reciclan todos estos materiales. Otros materiales pueden recolectarse en ubicaciones de reciclaje. Para obtener instrucciones más específicas, comuníquese con el coordinador de reciclaje de su ciudad.

O llame al Comité Operativo de Reciclaje de Tunxis al
860-585-0419 o 860-225-9811
www.tunxisrecycling.org

GUÍA DE RECICLAJE EN VEREDA

SÍ Colocar en el contenedor

ENVASES LIMPIOS DE ALIMENTOS Y BEBIDAS
Deben estar limpios y enjuagados
Incluyendo botellas de detergente y de champú

PAPEL
- Periódicos
- Correo masivo
- Revistas
- Papel de oficina
- Catálogos
- Cajas de cereales

ENVASES DE ALIMENTOS Y BEBIDAS DE VIDRIO Y METAL
Deben estar limpios y enjuagados

ENVASES DE PLÁSTICO
- Deben estar limpios y enjuagados
- ¡NUEVO! #1 - #7

CARTÓN CORRUGADO
Aplanado y reducido hasta 2'x3'

NO

BASURA
- Cerámica
- Electrodomésticos
- Basura del hogar

LATAS DE AEROSOL

ENVASES DE MEDICINAS CON RECETA

ELEMENTOS PUNZANTES
- Cuchillos
- Jeringas / agujas
  Requieren un tratamiento especial
- Focos de luz
- Espejos
- Vidrios de ventanas

BOLSAS DE PLÁSTICO
- Reciclar en el supermercado

LÍQUIDOS TÓXICOS
- Anticongelante
- Pesticidas
- Aceite de motor
- Latas de pintura
- Limpiadores del hogar

¿POR QUÉ RECICLAR?
- Ahorra dinero $ - Reduce las emisiones de gases de efecto invernadero
- Conserva los recursos naturales - ¡Reduce las huellas de carbono!

POLISH TRANSLATION OF INSIDE COPY

DUŻY KOSZ LUB MAŁY KOSZ
RECYKLING ŁĄCZNY = WSZYSTKO W JEDNYM!

W rejonie recyklingowym Tunxis jeden kosz używany jest do zbierania wszystkich materiałów recyklingowych. Mieszkańcy, którzy nadal używają wiader, mogą umieszczać odpady w okrągłych, czerwonych lub niebieskich wiadrach.

Prosimy o postawienie swojego pojemnika przy krawężniku w noc poprzedzającą dzień zbierania odpadów recyklingowych. Papier/karton może być mokry od deszczu lub śniegu. Nie zostawiać przy krawężniku na dłużej niż jeden dzień.

UWAGA: Nie wszystkie miasta poddają utylizacji wszystkie z tych odpadów. W miejscach zbiórek mogą być także zbierane dodatkowe odpady. W celu uzyskania szczegółowych instrukcji prosimy o kontakt z miejskim koordynatorem ds. recyklingu.

Można też skontaktować się z Komitetem operacyjnym ds. recyclingu w Tunxis pod numerem telefonu **860-585-0419 lub 860-225-9811**
www.tunxisrecycling.org

KRAWĘŻNIKOWY PRZEWODNIK RECYKLINGOWY

TAK Umieść w koszu przy krawężniku

CZYSTE POJEMNIKI PO NAPOJACH I ŻYWNOŚCI
Muszą być oczyszczone i opłukane
Obejmują detergenty do prania
i butelki po szamponie

PAPIER
- Gazety
- Ulotki reklamowe
- Magazyny
- Papier biurowy
- Katalogi
- Pudełka po płatkach zbożowych

POJEMNIKI SZKLANE I METALOWE PO NAPOJACH I ŻYWNOŚCI
Muszą być oczyszczone i opłukane

POJEMNIKI PLASTIKOWE
- Muszą być oczyszczone i opłukane
- #1–#7 NOWOŚĆ!

TEKTURA FALISTA
Złożona na płasko do rozmiarów 2'x3'

NIE

ŚMIECI
- Ceramika
- Sprzęt AGD
- Domowe śmieci

PUSZKI PO AEROZOLACH

POJEMNIKI PO LEKACH NA RECEPTĘ

OSTRE PRZEDMIOTY
- Noże
- Strzykawki/igły
  Wymagają specjalnego postępowania
- Żarówki
- Lustra
- Szkło okienne

TORBY PLASTIKOWE
Utylizowane w supermarkecie

TOKSYCZNE PŁYNY
- Odmrażacz do szyb
- Pestycydy
- Olej silnikowy
- Puszki po farbie
- Domowe środki myjące

DLACZEGO WARTO?
- Oszczędza pieniądze $ - Zmniejsza emisję gazów cieplarnianych
- Chroni zasoby naturalne - Zmniejsza ślad węglowy!

BIG BIN

OR SMALL BIN

SINGLE STREAM = ALL IN ONE!

tunxisrecycling.org

TUNXIS RECYCLING

Pongan todos los artículos reciclables juntos en el cajon del reciclaje.

Material Reciclable

Papel
Periódicos, publicidad, folletos, revistas, todo tipo de sobres y correo para echar

Cartón
Todo tipo de carton, cajas de cereals

Contenidores de Comida y Bebidas
Se incluyen:

- Botellas de vidrio y de plástico
- Latas de metal *(no latas de spray)*
- Cartones de cera *(como de leche y jugo de naranja)*
- Latas de aluminio
- Papel de aluminio
- Bandejas de aluminio *(como para comida preparada)*

Lo Que *No Se Puede Botar* en el Contenidor de Reciclaje

Papel

- Periódicos sucios o contaminados
- Libros de cobertura dura
- Papeles sucios *(de restos de comida,etc.)*, toallas de papel
- Papel carton sucio *(no se permiten las cajas de pizza)*
  - ✦ Muebles
  - ✦ Desecho de alimento
  - ✦ Pañales

Contenidores

- Contenidores de líquidos para el carro *(aceite o anti-congelante, etc.)*
- Latas de spray *(aerosol)*
- Contenidores de comida que NO son de vidrio, lata, aluminio o plástico
- Contenidores de más de dos galones

Otros Artículos

- No latas de pintura ni botellas de medicina
- Artículos de cristal: bombillas, cristal de ventana, platos
- Artículos de cerámica como botellas, platos, y macetas para flores
- Restos de jardinería *(hojas, hierba, tierra)*
- Bolsas de plástico *(incluídos las de la compra o del supermercado)*

El Reciclaje Combinado en un Cajon

Sacan los contenedores a la calle la noche antes de su día de recogida. Los contenedores deben colocarse a dos pies de distancia del borde de la acera y tres o cuatro pies distante de cualquier otro objeto. Y colocar con la barra metalica hacía la calle, con el agarrado en el lado contrario.

Como Reciclar

- Aplastar las cajas
- Cortar los cartones grandes para poder entrar facilmente en el contenedor/cubo de reciclaje
- Lavar los contenedores de plástico, metal y vidrio
- No se tienen que quitar las etiquetas ni el metal que cubre el cuello de las botellas
- No se permite cristal roto

Nota: Solo se permiten botellas de plástico vacías. Pueden ser trasparentes o de color y se permiten las botellas para detergente, champú, etc. *(No se permiten contenedores de químicas peligrosas, ni de aceite o de anti-congelante.)*

¿Necesitas Información?

860-585-0419 **860-225-9811**
www.tunxisrecycling.org

Tunxis Recycling
43 Enterprise Drive
Bristol, CT 06010

PRSRT STD
U.S. POSTAGE
PAID
BRISTOL, CT
PERMIT NO. 2

Resources

These resources will provide more detailed information on home composting.

Videos

The CT Department of Environmental Protection has produced two video programs entitled *Home Composting-Turning Your Spoils to Soil* and *Don't Trash the Grass*. Download them for free at www.ct.gov/dep/composting. They can also be borrowed in VHS format from CT public libraries or can be purchased from the DEP store on-line at www.ct.gov/dep/store under the composting section or call (860) 424-3555 to order.

Internet resources

Search the Internet for "home composting" to find more resources. Some good examples are:

www.composting101.com
www.epa.gov/compost
www.compostinfo.com

Books and Magazines

- ***"Easy Composting - Environmentally Friendly Gardening"*** Ortho Books. Many color photographs and excellent presentation.
- ***"Composting to Reduce the Waste Stream - A Guide to Small Scale Food and Yard Waste Composting"*** Order through Northeast Regional Agricultural Engineering Service, 152 Riley Robb Hall, Cooperative Extension, Ithaca, NY 14853-5701 or call (607) 255-7654.
- ***"The Real Dirt - The Complete Guide to Backyard, Balcony and Apartment Composting"*** Mark Cullen, Lorraine Johnson. Practical how-to advice, activities for children, bin plans, FAQ's, etc.

This is only a partial listing and by providing it to you, the CT Department of Environmental Protection is not recommending these resources over any others.

Compost Bins

You can make your own compost bin from wood pallets, a garbage can or wire mesh. Here's how:

Wood Pallet Bin

Materials: 4 to 6 pallets, heavy-duty plastic ties.

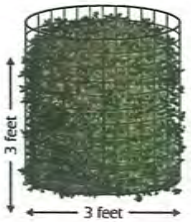
Use 4 pallets to form the sides of the bin and fasten the pallets together with ties. You can also use another pallet for a cover and one more for a base.

Garbage Can Bin

Materials: garbage can with cover, drill.

Drill holes all over the sides and bottom of the can. Cover the can to keep animals out of it.

Wire Mesh Bin



Materials: 14 gauge or medium weight welded wire mesh, heavy-duty plastic ties.

Form a circle with the mesh and fasten with the ties.

You can also purchase a bin from home improvement and garden centers, hardware stores or the internet at such sites as www.composters.com **or** www.gardeners.com

Printed on 30% post-consumer recycled content paper.
Revised 06-12-08

State of Connecticut Department of Environmental Protection

Composting Has A-PEEL

An Introduction to Home Composting

Connecticut Department of Environmental Protection
Bureau of Materials Management & Compliance Assurance
Source Reduction & Recycling Program
79 Elm Street
Hartford, CT 06106-5127
(860) 424-3365
www.ct.gov/dep

What is Compost?

Compost is a dark, crumbly and earthy-smelling material made up of decomposed organic matter such as food scraps, leaves, grass clippings and wood chips. Compost contains living organisms that require food, oxygen and water to survive.

Composting is our way of speeding up Mother Nature's decomposition process.

Passive vs. Active Composting

Passive composting is virtually labor-free. It requires a holding bin and takes between 8-12 months to get finished compost.

Active composting requires more frequent turning and will produce compost much quicker than passive composting.

50:50 Brown to Green Ratio

It is important when composting to maintain a balance between carbon based materials (browns) and nitrogen based materials (greens).

Brown materials include: dried grass, autumn dried leaves, saw dust, wood chips (untreated wood), straw.

Green materials include: fruit & vegetable scraps, coffee grounds, tea bags, eggshells.

Why Compost?

There are many benefits to composting. It is a simple and inexpensive way to dispose of and recycle food scraps and yard waste that would otherwise enter the waste stream. Compost also helps improve the health and quality of the soil that it is added to.

Composting:

- Reduces the volume of garbage
- Saves money on disposal costs
- Enriches and adds nutrients to the soil
- Improves soil structure for better root growth, increased moisture and nutrient retention
- Balances acid and alkalinity (pH) of the soil
- Suppresses disease and harmful pests
- Reduces the need for chemical fertilizers

DO Compost:

- any vegetable or fruit scraps
- egg shells
- coffee grounds and filters
- tea bags (remove staples)
- newspaper, paper towels
- leaves and grass clippings

DO NOT Compost:

- meat
- fish
- dairy products
- diseased plants
- pet waste
- cat litter
- fats and oils
- wood and charcoal ash
- grass clippings treated with herbicides
- non-organic material like plastic and metal

WHEN IN DOUBT, LEAVE IT OUT!

How to Compost

1. Choose an area about 4 x 4 x 4 feet that is not in direct sunlight and is an easily accessible spot on grass or soil. Place the compost pile away from the house.
2. Start with a 6" layer of woody stalks at the bottom of the pile. Alternate 4" layers of brown material and 2" layers of green material. Add water as needed. The pile should be as wet as a wrung sponge. Continue to add food scraps year-round by burying them in the pile and providing more brown material as needed. See troubleshooting chart below.
3. Turn or stir the pile regularly to aerate.
4. The compost is ready when it looks dark and crumbly and the starting ingredients are no longer be visible.

Troubleshooting

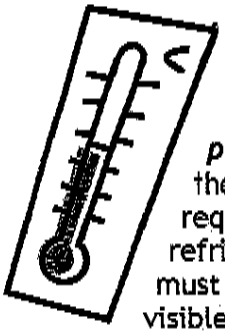
Problem	Solution
Compost smells	Turn the pile and add browns
Too wet	Turn the pile and add dry material
Too dry	Turn the pile and add water, then shade
Cool to the touch	Add more greens

FOOD 4 THOUGHT

CITY OF MERIDEN, DEPARTMENT OF HEALTH AUGUST 2009

As many of you know, on July 1st of every year the health inspectors rotate areas. If you haven't seen a change of inspectors yet, you will at your next routine inspection.

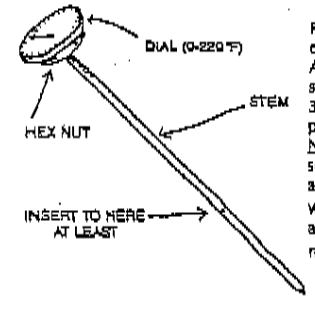
The first topic we would like to discuss is item #4 on the food service inspection form: ***"adequate facilities to maintain product temperature, thermometers provided."*** A thermometer is required for each refrigeration unit. It must be clearly visible and placed in the warmest part of the unit. Temperature checks of refrigeration unit(s) should be done regularly. Recording/ logging temperatures of cold holding equipment is highly recommended.



Probe thermometers or thermocouples are required to take food temperatures and should be calibrated on a regular basis.

(clip & save)

CALIBRATING YOUR THERMOMETER



Place unit in a container of crushed ice and water. Allow to set for at least 30 seconds. If dial does not read 32°f, adjust Hex nut with pliers so dial reads 32°f.
Note: Calibrate to the cold setting as this is much more accurate and the hot setting will automatically be adjusted. Calibrate at least monthly.

Items #61 and #62 on the inspection form refer to: ***designating an alternate person to be in charge of the establishment when the QFO (Qualified Food Operator) is not present.*** The alternate must comply by signing the "Alternate Person in Charge - *Demonstrated Knowledge Statement"* which has been given to all our establishments. The designated alternate must make sure that all employees follow the regulations and prepare food safely.

Item #62 requires ***"written documentation of a training program."*** The QFO is required to train all employees involved in food preparation. The training records must include:

- Proper food temperature control
- Food protection
- Personal health & cleanliness
- Sanitation of the facility, equipment, supplies and utensils.

The designated alternate form and training records must be kept at the establishment and be made available to the health inspector when requested. You may be permitted to use your own training records...provided they include at least the topics mentioned above. **Citations may be issued to those facilities that have repeatedly been marked for these violations.**

(Copies of both the training record and the knowledge statement are available at the health department.)

GREASE TRAPS

On September 30, 2005, a new DEP General Permit went into effect regarding fats, oils and grease (FOG) generated in food service establishments

As of that date, all new class 3 and class 4 food service facilities must be constructed in accordance with the general permit. Food service establishments that change ownership will be required to comply within 60 days of the date of sale. All facilities that are currently operating with no change of owner and are not located in a problem area (as determined by the Water Pollution Control Facility), will have until **July 1, 2011** to come into compliance with this general permit.

There are two types of grease traps, an outdoor-in-ground and an automatic-indoor grease trap.

Outdoor-in-ground grease traps are required to have a minimum capacity of 1,000 gallons or a retention time of 24 hours at the average daily flow. Outdoor traps require regular inspection and removal of grease by properly trained and licensed septage haulers. Records of grease trap inspection and grease removal should be maintained in a **logbook** and include the date of inspection or grease removal, name of the company providing the service, and volume of material removed. Licensed septic tank installers provide installation of outdoor grease traps.

When sufficient space is not available for proper installation of an outdoor-in-ground grease trap, an automatic-indoor grease trap may be used. Automatic indoor grease traps must be sized by a manufacturer's representative for the site where they are going to be installed. Automatic indoor units require daily removal of grease and cleaning of the screenings basket.

As with the outdoor units, a logbook must be kept on all indoor grease trap maintenance including who provided the maintenance and the date and time. Automatic indoor grease traps can be maintained by food preparation facility employees.

TAKE OUR QUIZ

1) Where should a thermometer be located in a refrigerator?

a. In the back
b. Visible in the front
c. In the coldest part of unit
d. Not required

2) How do you calibrate a probe thermometer?

a. Not necessary
b. Boiling water
c. Ice bath
d. Both b and c

3) The designated alternate must take the Qualified Food Operator course:

a. True
b. False

4) What should be done with training records?

a. Leave blank in junk drawer
b. Discard after inspector leaves
c. Keep completed training records on site and available for inspector
d. None of the above

5) When do class 3 and 4 food service establisments have to come into compliance with the DEP General Permit regarding FOG (fats, oil, grease)?

a. July 1, 2011
b. New establishments
c. Upon change of ownership
d. All of the above

(answers below)

AVOID THE FLU

COVER YOUR COUGH

WASH YOUR HANDS

STAY HOME IF YOU ARE SICK

Answers: 1) b; 2) d; 3) F; 4) c; 5) d

Meriden Health Department
Environmental Health Section
165 Miller Street
Meriden, CT 06450
630-4226

Beth Vumbaco, R.N., M.S.
Director of Health & Human Services

Scott Bryden, R.S.
Environmental Health Administrator

Carrie Buckley, R.S.
Stephen Civitelli, R.S
Jennifer Henaire, B.S.
Environmental Health Sanitarians

Linda Tschupp
Environmental Secretary

CITY OF MERIDEN
DEPARTMENT OF PUBLIC UTILITIES

Water Pollution Control Facility
226 Evansville Avenue
Meriden, Connecticut 06451
Ph. (203) 630-4261
Fax (203) 630-2191

David P. Lohman
Director of Public Utilities

Dennis Waz, Superintendent Water/Wastewater
Francis Russo, WPCF Manager/Chief Operator

Dear Customer:

As you review this water and sewer bill, you will notice a significant increase in the Sewer Use Rate. This letter is to provide details as to the reasons for the rate hike and explain how the funds will be allocated.

Federal (Environmental Protection Agency; EPA) and State (Department of Environmental Protection; DEP) mandates require the Water Pollution Control Facility (WPCF) to reduce the amount of nitrogen and phosphorus released into the Quinnipiac River. In addition to these mandates, the WPCF had surpassed its twenty year design and needed to be updated with modern, energy-efficient technology to meet stringent Federal and State Discharge Limits.

The process to upgrade the WPCF started in 2002; with construction commencing in January, 2008. Unfortunately, shortly after the start of construction, the economy began to experience difficulties which have impacted every family.

The Public Utilities Department secured grants and low interest loans for this project, and we are now at the point of repayment of these loans. The repayment of these loans requires the Department of Public Utilities to increase the User Rate to generate revenue to make these payments.

Public Utilities Management and Staff are sensitive to the economic climate and are committed to reducing operational costs and stabilizing the User Rate. We invite you to visit the City of Meriden's web site and view a video of the Plant upgrade so you may have a better understanding of how your rate dollars are being utilized. Please go to www.cityofmeriden.org and click on Municipal Services, Public Utilities, Water Pollution Control Division, Water Pollution Control Facility Video Tour to view the video.

Meriden Residents and Restaurant Owners:

Due to the increasing cost of maintenance and repairs to the City's sewage system and new State Regulations, a new City-wide Program is being developed. This new Program is designed to reduce the volume of animal fat, cooking oil, and food-related grease discharged to the sewage system.

Waste fats, oils, and grease (FOG) generated during cooking are liquid while warm, leading many people to believe that disposing of this material through a drain is appropriate. However, when the FOG cools it becomes solid and coats the walls of the sewer system. Over time, thick layers of FOG can accumulate in the sewage system preventing the flow of sewage. Municipal Workers must then remove the FOG to prevent sewage from overflowing from manholes. The State of Connecticut has determined that in many cases State-wide, these overflows have been caused by FOG, resulting in public health risks, negative impacts to the State's waterways, and expensive clean-up costs to both the Municipality and to private property owners.

In an effort to reduce the volume of FOG entering the sewage system, residents are encouraged to pour waste FOG into heat-proof containers, such as metal cans, and allow the FOG to cool. Once the FOG has cooled, it can be discarded in the trash.

Restaurants will be required to install and maintain approved types of grease traps at their facilities. Restaurants required to participate in the Program will receive registration packages by mail in the coming months.

Watch for FOG Program updates in the Record Journal and on public access television, Channel 15. The Meriden Public Utilities Commission appreciates your cooperation and will be providing additional information in the future.

Clean Sewer Line

Clogged Sewer Line

City to launch anti-littering campaign this afternoon

By: Dan Ivers | Posted: Thursday, October 7, 2010 11:00 am |

Officials will hold a brief ceremony at City Hall this afternoon to kick off a campaign to curb littering and beautify the city's streets.

The "Meriden Clean and Green" campaign is aimed at instituting cost-effective changes to help control littering. The initiative will concentrate on educating business owners, residents and visitors alike about the importance of properly disposing of trash.

Police and other officials will also be stepping up their enforcement of littering and recycling laws.

City moving forward with plans to preserve NRG land

By: Dave Moran | Posted: Thursday, July 8, 2010 4:39 pm |

MERIDEN - The city is moving ahead with plans to preserve more than a 100 acres of land on South Mountain Road as a permanent conservation area.

The land, part of a larger 310-acre parcel that surrounds a half-built power plant atop Cathole Mountain, came to the city in 2006, after it sued the plant's owner, NRG Energy, to enforce the transfer that was part of the state's initial approval of the project in the late 1990s; Berlin also received land as part of the transfer. NRG halted work on the plant, which was intended to have the capacity to generate 544 megawatts of electricity, in 2002 due to an inability to find a buyer for the electricity the plant would generate, NRG officials said Thursday.

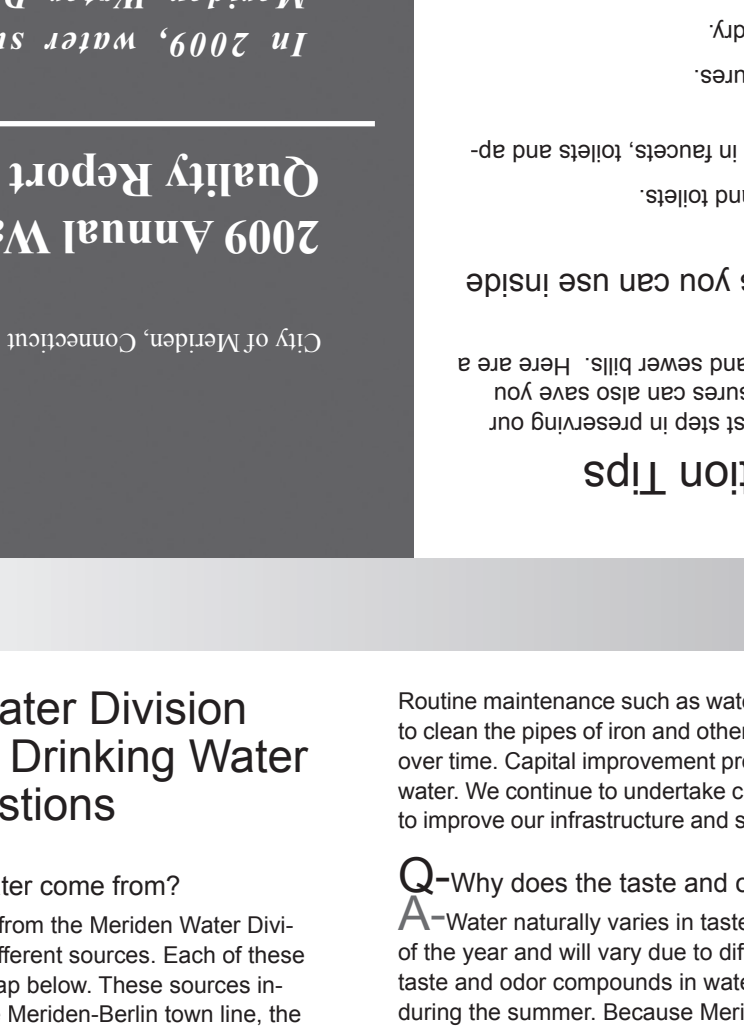
The land that the city has identified as conservation areas include a strip of land along the mountain's ridgeline on the south of the parcel, and a large swath on the northeastern corner that includes the headwaters of Sodom Brook and a large vernal pool that serves as a salamander breeding area.

"It's an environmentally sensitive area," said Brian Daniels, a Democratic City Councilor who also serves as Chairman of the Economic Development Committee.

Meriden Water Division Answers Your Drinking Water Questions

Q-Where does my water come from?

A-Water supplied to you from the Meriden Water Division actually has several different sources. Each of these sources is shown on the map below. These sources include four reservoirs on the Meriden-Berlin town line, the Broad Brook Reservoir on the Meriden-Cheshire town line, the Bradley-Hubbard Reservoir in the northeast corner of Meriden, and six groundwater wells located throughout the City. Depending on system requirements, the City also purchases water from the South Central Connecticut Regional Water Authority. Water from the reservoirs is treated at one of Meriden's four water treatment plants. Water from each well is treated at each individual well field. After water is treated, it is distributed to city homes and businesses through a vast network of underground pipelines.



Q-What is being done to improve the system?

A-The Meriden Water Division is constantly trying to enhance both the quality and taste of your water. We do this through maintenance and capital improvement projects.

Routine maintenance such as water main flushing is performed to clean the pipes of iron and other deposits that accumulate over time. Capital improvement projects also can improve the water. We continue to undertake capital improvement projects to improve our infrastructure and storage systems.

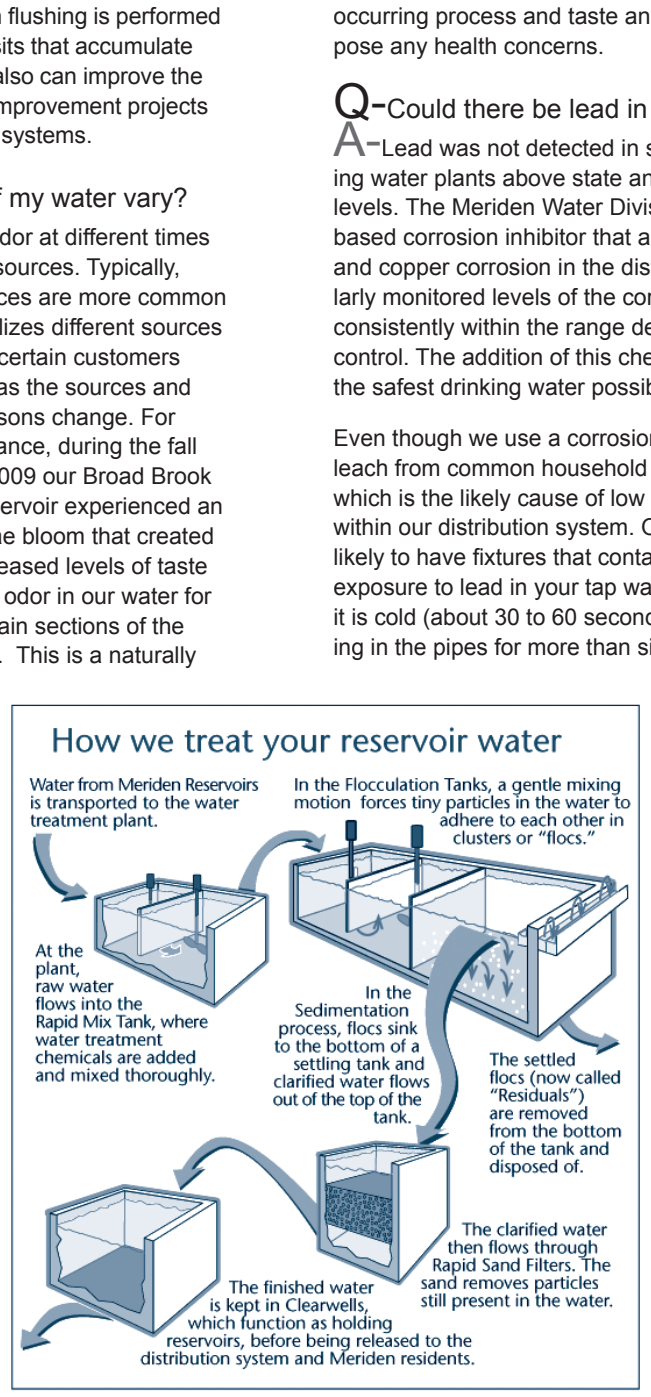
Q-Why does the taste and odor of my water vary?

A-Water naturally varies in taste and odor at different times of the year and will vary due to different sources. Typically, taste and odor compounds in water sources are more common during the summer. Because Meriden utilizes different sources based on the need and time of the year, certain customers will notice the different tastes and odors as the sources and seasons change. For instance, during the fall of 2009 our Broad Brook Reservoir experienced an algae bloom that created increased levels of taste and odor in our water for certain sections of the City. This is a naturally occurring process and taste and odor changes do not pose any health concerns.

Q-Could there be lead in my water?

A-Lead was not detected in samples from our drinking water plants above state and federal regulated levels. The Meriden Water Division adds a phosphate-based corrosion inhibitor that aids in reducing lead and copper corrosion in the distribution system. Regularly monitored levels of the corrosion inhibitor were consistently within the range desired for corrosion control. The addition of this chemical helps to provide the safest drinking water possible.

Even though we use a corrosion inhibitor, lead can leach from common household plumbing fixtures, which is the likely cause of low levels of lead detected within our distribution system. Older homes are more likely to have fixtures that contain lead. To minimize exposure to lead in your tap water, run the water until it is cold (about 30 to 60 seconds) if it has been standing in the pipes for more than six hours.



Q-Does our water contain fluoride?

A-Fluoride is added to your water to help prevent tooth decay. Levels of fluoride are consistently within limits set by state and federal regulation.

Together We Can Safeguard Our Water Supply

The Water Division is constantly checking water quality

Through the federal Safe Drinking Water Act (SDWA), the U.S. Environmental Protection Agency (U.S. EPA) sets national limits for hundreds of substances in drinking water and also specifies various treatments that water systems must use to remove those substances. The Meriden Water Division continually monitors for these substances, using sophisticated equipment and advanced procedures.

The public has a part to play too

The SDWA requires that we provide you with detailed information on water quality each year. We are happy to do this, because customers who are informed are our best allies in supporting improvements necessary for the long-term health of our water system. And remember – our City Council meetings are open to the public. You are always welcome to attend and to voice your views on our drinking water. For information on meeting times and location, please contact the City Clerk at (203) 630-4030. For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at 800-426-4791.

Water Conservation Tips

Conservation is an important first step in preserving our water supply. Using these measures can also save you money by reducing your water and sewer bills. Here are a few suggestions.

Conservation measures you can use inside your home:

- Fix leaking faucets, pipes, and toilets.
- Install water-saving devices in faucets, toilets and appliances.
- Replace high-water-use fixtures.
- Wash only full loads of laundry.
- Do not use the toilet for trash disposal.
- Take shorter showers.
- Do not let the water run while shaving or brushing teeth.
- Run the dishwasher only when full.

You can conserve outdoors as well:

- Water the lawn and garden in the early morning or evening.
- Use mulch around plants and shrubs.
- Repair leaks in faucets and hoses.
- Use water from a bucket to wash your car and save the hose for rinsing.

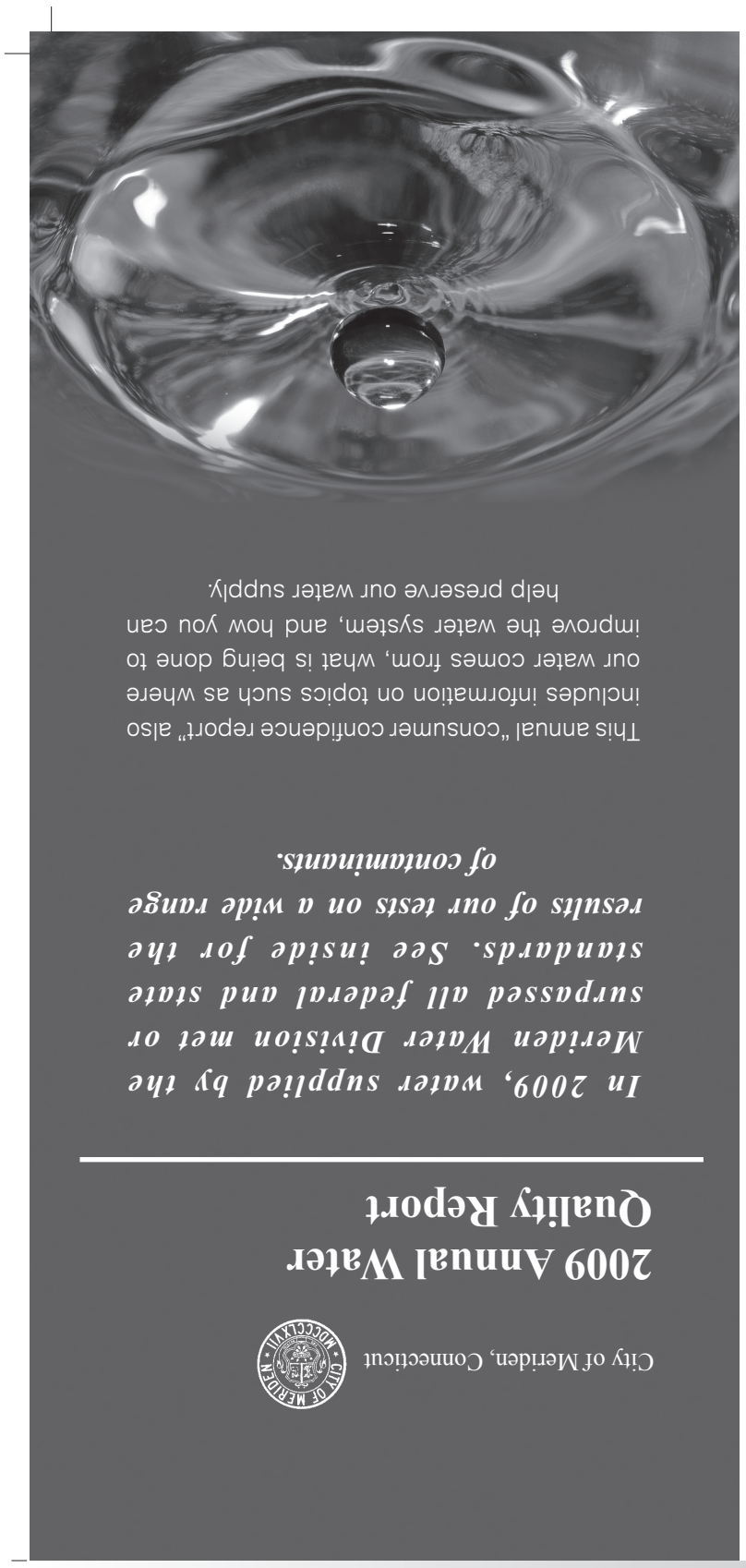
Drinking Water Hotline at 800-426-4791.

2009 Annual Water Quality Report

City of Meriden, Connecticut

In 2009, water supplied by the Meriden Water Division met or surpassed all federal and state standards. See inside for the results of our tests on a wide range of contaminants.

This annual "consumer confidence report" also includes information on topics such as where our water comes from, what is being done to improve the water system, and how you can help preserve our water supply.



What's In My Water? - Meriden Water-Quality Analysis

Contaminant	Date Tested	Units	MCL	MCLG	Maximum Detected Level	Range Detected	Major Sources	Violation
Inorganic Contaminants								
Copper	2009	mg/l	AL=1.3	1.3	0.717	<0.001 – 0.717	Corrosion of household plumbing systems; erosion of natural deposits	No
Fluoride	2009	mg/l	4.0	4.0	1.66	0.12 – 1.66	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	No
Nitrate	2009	mg/l	10	10	3.6	<0.05 – 3.6	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	No
Barium	2009	mg/l	2	2	0.234	0.005 – 0.234	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	No
Chlorine	2009	mg/l	4	4	2.0	0.10 – 2.0	Water additive used to control microbes	No
Sodium	2009	mg/l	AL = 28 (1)	NR	113	17.3 – 113	Stormwater runoff containing road salt	No(1)
Lead	2009	mg/l	AL = 0.015	0	0.001	<0.001 – 0.001	Corrosion of household plumbing systems; erosion of natural deposits	No
Iron	2009	mg/l	NR	0.3 (2)	0.049	ND – 0.049	Naturally occurring	No
Manganese	2009	mg/l	NR	0.05 (2)	0.048	ND – 0.048	Naturally occurring	No
Sulfate	2009	mg/l	NR	250 (2)	42	6.1 – 42	Naturally occurring	No
Chloride	2009	mg/l	NR	250 (2)	230	<3.0 – 230	Water additive used to control microbes	No
Asbestos	2000 (3)	mfl	7	7	0.53	ND – 0.53	Decay of asbestos cement in water mains; erosion of natural deposits	No
Radioactive Contaminants								
Uranium	2008	pci/l	30	0	1.0	<0.67 – 1.0	Erosion of natural deposits	No
Microorganisms								
Turbidity (point of entry)	2009	NTU	1(4)	NR	0.45	0.04 – 0.45	Soil Runoff	No
		% > 0.3 NTU	5% (4)	NR	3.3%	0 – 3.3%		
Total Coliforms	2009	%	5%	0	1.4%	0 – 1.4%	Bacteria naturally present in the environment	
Heterotropic Plate Count	2009	cfu/ml	500 (TT(5))	NR	60	0 – 60	Bacteria naturally present in the environment	No
Volatile Organic Contaminants								
Total TTHM	2009	ug/l	80 (6)	NR	29	26 – 29	Byproduct of drinking water disinfection	No
Total HAA5	2009	ug/l	60 (6)	NR	23	17 – 23	Byproduct of drinking water disinfection	No
Tetrachloroethylene	2009	ug/l	5	0	1.9	<0.5 – 1.9	Discharge from factories and dry cleaners	No
Dibromochloromethane	2009	ug/l	NR	60	5.3	<0.5 – 5.3	Byproduct of drinking water disinfection	No
Bromodichloromethane	2009	ug/l	NR	0	16	<0.5 – 16	Byproduct of drinking water disinfection	No
Bromoform	2009	ug/l	NR	0	0.78	<0.5 – 0.78	Byproduct of drinking water disinfection	No
Chloroform	2009	ug/l	NR	70	96	<0.5 – 96	Byproduct of drinking water disinfection	No
Dichloroacetic acid	2009	ug/l	NR	0	24	<1.0 – 24	Byproduct of drinking water disinfection	No
Trichloroacetic acid	2009	ug/l	NR	20	44	<1.0 – 44	Byproduct of drinking water disinfection	No
Dibromoacetic acid	2009	ug/l	NR	NR	3.5	<1.0 – 3.5	Byproduct of drinking water disinfection	No
Herbicides and Pesticides								
1,2-Dibromo-3-chloropropane (DBCP)	2009	ug/l	0.2	0	0.04	<0.02 – 0.04	Runoff/leaching from soil fumigant	No
1, 2-Dibromoethane (EDB)	2009	ug/l	0.05	0	0.03	<0.02 – 0.03	Discharge from petroleum refineries	No

We are pleased to report that during the past year, the water delivered to your home or business complied with, or did better than, all state and federal drinking water requirements. Each year we analyze thousands of water samples for bacteria, turbidity, inorganic contaminants, lead and copper, nitrate, volatile organic contaminants, total trihalomethanes, and synthetic organic contaminants. For your information, we have listed in the table on the left the substances that were detected in our drinking water during the year. Although all of the substances listed are under the Maximum Contaminant Level (MCL) set by U.S. EPA, we believe it is important that you know exactly what was detected and how much of the substance was present in the water.

Notes:

(1) Although sodium does not have a MCL, the State requires that the water supplier provide notification to customers of levels exceeding 28.0 ppm. Therefore, if levels of sodium were recorded from a supply source in your area you were previously provided notification of the event. Elevated levels of sodium encountered are believed to be caused by road salt.

(2) The EPA has established these National Secondary Drinking Water Regulations (NSDWRs) for contaminants that may cause cosmetic or aesthetic effects in drinking water. These standards are recommendations, not requirements, but the City of Meriden strives to comply with them.

(3) Asbestos is not tested for every year; the most recent results available are given.

(4) Turbidity: As of January 1, 2002, turbidity may never exceed 1 NTU, and must not exceed 0.3 NTU in 95% of daily samples in any month.

(5) EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels: HPC: No more than 500 bacterial colonies per milliliter.

(6) As of January 1, 2002, these standards refer to running annual averages. Data from the last three quarters of 2008 is included in figuring these averages.

Key To Table

AL = Action Level
MCL = Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal
NTU = Nephelometric Turbidity Units
ND = non-detectable
NR= Not Regulated
mg/l = milligrams per liter
ug/l = micrograms per liter
pci/l = Picocuries per liter
mfl = Million fibers per liter
n/a = not applicable
TTHM = total trihalomethanes
HAA5 = five haloacetic acids

Understanding Contaminants

To ensure that tap water is safe to drink, U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of both tap and bottled drinking water include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water from these sources travels over the surface of the land or through the ground, it can acquire naturally occurring minerals (which in some cases could be radioactive) and substances resulting from the presence of animals or from a wide variety of human and industrial activities. Substances that may be present in source water include:

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from such things as urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, or mining. This category of contaminants also includes the pesticides and herbicides used primarily in agriculture.

Radioactive Contaminants, which can be naturally occuring or may be the result of oil and gas production and mining activities.

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations or wildlife.

Volatile Organic (and Synthetic) Contaminants, which are typically by-products of industrial processes and petroleum production, and may also come from gas stations, urban stormwater runoff, and septic systems.

As the table above demonstrates, the Meriden Water Division removes these contaminants prior to distribution. Meriden water meets or surpasses all state and federal drinking water requirements.

Regulated Contaminants

Meriden Water Division tests for a large number of contaminants, though only detected contaminants are noted. Every regulated contaminant that we detected in the water is listed in the water-quality table above. In 2009, the Meriden Water Division's drinking water met or surpassed all federal and state drinking water standards.

Unregulated Contaminants

Meriden Water Division tested for Cryptosporidium in 2009 and the results are available as required.

The Meriden Water Division also utilizes a phosphate-based corrosion inhibitor as part of a lead and copper control program. The Division regularly monitors orthophosphate total levels; during 2009, levels ranged from 0.35 mg/l to 1.67 mg/l.

Health Matters

The presence of contaminants in drinking water does not necessarily indicate that the water poses a potential health threat.

A few contaminants, like copper, are in fact essential nutrients at appropriate, very low concentrations. However, some people who drink water that contains copper in excess of the EPA's Action Level could experience gastrointestinal distress over a relatively short period of time. Over many years, ingesting water that contains copper in excess of the Action Level could lead to liver or kidney damage. People with Wilson's disease should consult their personal doctor about their water consumption.

Lead is also a concern. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink water containing lead in excess of the action level over many years could develop kidney problems or high blood pressure.

Some people may be more vulnerable to contaminants in drinking water than is the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline (800-426-4791).

Source Water Assessment

Source Water Assessment Reports were completed by the Department of Public Health, Drinking Water Division for the Meriden Water Division. The assessment report can be found on the DPH's website: http://www.dir.ct.gov/dph/Water/SWAP/community/CT0800011.pdf. The assessment found that the public drinking water sources have susceptibility to potential sources of contamination, low for the reservoir sources, and ranging from moderate to high for the groundwater sources.

Wide-ranging cleanup campaign set

By: By Dan Brechlin | Posted: Tuesday, September 21, 2010 10:43 pm |

Online Features Links

MERIDEN - Litter can be frustrating to business owners and residents alike, but the city is taking action against it.

It can be expensive to keep the city clean, but Mayor Michael S. Rohde said cost-effective changes need to be made, which is why he is starting a new campaign, "Meriden Clean and Green."

"The mayor's office receives a fair amount of complaints about litter," Rohde said. "We have the mayor's pick-up day, but we wanted to do something more comprehensive."

The campaign is designed to reach out to entities around the city, including the parks department, Meriden Housing Authority, schools, police, and the Greater Meriden Chamber of Commerce. Rohde said that, by looking in many directions for help, he will be able to get his anti-littering message out.

The goal, he said, is to "keep Meriden a beautiful, healthy and safe place to live" by asking people to "take a greater responsibility for improving their community environment."

The mayor said the campaign has three goals: educating business owners, residents and visitors about the im-portance of keeping the city clean; maintaining and improving the appearance of neighborhoods, and ensuring that laws regarding trash collection, littering and recycling are enforced.

Sean Moore, president of the Greater Meriden Chamber of Commerce, said educating business owners and encouraging them to keep litter off the street is a key to the campaign.

"It's a no-brainer that business upkeep is a goal," Moore said. "We are trying to keep the city as attractive as possible. A very simple task like keeping the sidewalk and streetscape clean improves the overall image of your business and the image of Meriden."

Rohde said he also will look for businesses and organizations to sponsor trash cans throughout the city.

That's welcome news to Fred Barillaro, owner of Rose Flower & Gifts at 232 W. Main St., who said he often sees garbage and litter around.

"There used to be litter cans around," Barillaro said. "If you had those emptied every day, it might help a little bit. Then again, you can't have them if they aren't emptied."

Rohde said businesses and organizations that put in extra effort to encourage cleanliness will receive some form of recognition.

"It will only work if we do it all together," Moore said.

dbrechlin@record-journal.com

(203) 317-2266

Appendix C

Public Notices and Public Participation Materials

QRWA river race thrives in glorious weather

By: Richie Rathsack | Posted: Sunday, May 16, 2010 11:09 pm |

MERIDEN - After two straight renewals in cold, rainy conditions, the annual Quinnipiac River Watershed Association Downriver Classic finally caught a break from the weather Sunday afternoon, which officials think brought out people who might otherwise have skipped the mid-May canoe and kayak race.

Dan Pelletier took his seat with a stopwatch around his neck to record the times as racers went under the Red Bridge, which served as the finish line. He said 53 racers signed up this year, up from 35 last year.

"The weather doesn't get much better than this for a race," Pelletier said as he waited for the racers to come through. "The river is at a pretty good level and we were out there removing trees and brush from the course. It should be a good one."

He didn't have to wait too long to get to work as Dave Wiltey of East Hampton, came through with his long kayak, finishing in 50 minutes, 21 seconds. It wasn't long before racers in kayaks and canoes came paddling by.

Spectators lined the bridge and the grassy area along the river cheering on the racers as they approached the end of the 5-mile course. Katie Morico, 18 and her friend Stephanie Torres, 19, sat on a blanket soaking up the sun while waiting for Morico's mother, Faith, to come by.

Katie Morico said the weather played a big factor in her decision to come out. "It's usually cold for this, so this is great," she said, getting her camera ready.

Nearby, Kathy Duggan, of Leicester, Mass. sat in a folding chair waiting for her husband, Dennis, and son, Keith. Both are regulars in the race, prompting encouraging shouts from people on the bridge as Keith appeared.

"Paddle like your father's behind you," someone yelled, followed by loud laughter.

Kathy Duggan said her husband and son compete in races throughout New England and she attends nearly all of them.

"This is one of the nicer ones. They like the course and the people are really nice," Kathy said.

After the race, boats were pulled ashore and the racers stopped by QRWA headquarters. A band was playing as the racers grabbed a quick bite to eat, courtesy of QRWA members working a grill.

Mary Mushinsky, the QRWA's executive director, pointed out special M&M candies produced for the 30th anniversary of the race. The candy had the traditional M on one side but had messages like "QRWA Rocks" and "30 Years Paddling" on the other.

Mushinsky walked through the racers, who were chatting as they waited for the times to be finalized and the awards ceremony to begin.

She pointed out the youngest racer the organization had ever allowed, a team made up of Eric Jones of Granby and his 4-year-old daughter, Pheobe.

"I like paddling with Daddy," Phoebe said, still wearing her racing helmet.

Mike Krzesik of Southington and Mike Alstrits of Cheshire said Sunday was their first race and they had a great time, despite a couple of mishaps along the course.

"We took a little swim early on. This was one of the nicest rivers we've ever paddled down," Krzesik said. "We are very pro environmental in the area and these people put forth a lot of effort."

During that early spill, they broke an oar and kept going using a canoe paddle. Mushinsky asked Alstrits how that worked out, to which he said, "it helped balance out the guns," while laughing and flexing his muscles.

The two men, like many other first-time racers, said the nice weather and beautiful course had them excited at the prospect of racing again next year.

rrathsack@record-journal.com

(203) 317-2227

QRWA marks 30 years of river race

By: Richie Rathsack | Posted: Sunday, May 16, 2010 6:06 pm |

MERIDEN - The weather was a change from the cold, rainy conditions during the last two years for the an-nual Quinnipiac River Watershed Association Downriver Classic Sunday afternoon, which officials think brought out people who might otherwise be apprehensive about a mid-May canoe and kayak race.

Dan Pelletier took his seat with a stop watch around his neck to record the times as racers went under the Red Bridge, which served as the finishing line. He said this year 53 racers signed up, up from the 35 last year when it was cold and wet.

"The weather doesn't get much better than this for a race," Pelletier said as he waited for the racers to come through. "The river is at a pretty good level and we were out there removing trees and brush from the course. It should be a good one."

He didn't have to wait too long to get to work as Dave Wiltey of Johnstown, NY came through with his long kayak, recording a finish time of 50:21. It wasn't long before racers in kayaks and canoes came paddling by.

Peter Polack picks a peck at park

By: Dan Ivers | Posted: Monday, September 6, 2010 10:51 pm |

MERIDEN - Peter Polack entered Hubbard Park for the 584th time Monday afternoon, armed with a pack full of garbage bags, gloves and other hiking essentials.

After around two and half hours of combing around three miles of the park's trails, he had filled a bag with litter, something he has done more than 100 times over the past two years.

"I try to come at least once a week," he said. "You'll be amazed the stuff you'll find."

Actually, Polack, 50, has been coming to the park every week since July 1998 to clear debris from his beloved system of trails at the park. Two years ago, when the city's Conservation Commission launched its citizen-based "Adopt-a-Park" program, he was more than happy to take it on - picking up litter and reporting graffiti and other illegal behavior to city officials.

"I did this in obscurity for the past 10 years," he said.

The task is not an easy one. Hubbard Park is the largest municipally owned park in the entire country, encompassing 1,803 acres of forest, trails, mountains and wetlands.

An avid mountain biker, the lifelong city resident, who has a full-time job as a two-way radio technician, began frequenting the trails on his bike in 1984. After each of his last 584 trips, he has written a detailed report in a journal, which he then forwards - often with pictures attached - to city Parks and Recreation Director Mark Zebora.

"Every Monday I get an e-mail with pictures - everything from trees down to graffiti to ATVs. He finds out where they're coming in," said Zebora.

Zebora said that only a handful of the city's 24 municipal parks have been adopted under the "Adopt-A-Park" program, but that the value of having Polack look after its largest expanse of land was beyond measure.

"No one's on the same level as Peter," he said. "He just loves the park."

Conservation Commission Chairwoman Mary Ellen Mordarski also expressed her awe at the amount of time and effort Polack puts in, adding that when the "Adopt-A-Park" program began in 2008, no one expected anyone to be able to handle Hubbard Park.

"Hubbard Park is a huge park, and for somebody to take that on and send detailed reports is just amazing," she said.

For Polack, however, monitoring the trails has become something of a way of life.

Moving at a pace that would quickly prove exhausting to anyone but the fittest hikers, he spots soda bottles and empty cigarette packs buried in leaves from several yards away. When he crosses path with an elderly man and his English Labrador retriever, Polack's focus wanes and he pulls a small treat from his pack to offer the dog.

Afterward, he records the findings of his visit in his worn journal with painstaking accuracy, a series of newspaper clippings and other notes spilling from inside its front cover. Recent accounts include pictures of people illegally fishing in the city's reservoir and a bit of graffiti on trees, which he plans to remove himself.

When asked if he ever becomes frustrated by the never-ending supply of litter that inevitably ends up lining the trails, he answered with an emphatic "no."

"There are all kinds of good things that never stop," he said, citing soup kitchens' offering of free food to the poor each Thanksgiving as an example.

"I just do it. I can't just stop doing this."

divers@record-journal.com

(203) 317-2275

Is your business river-friendly?

BECOME A " Friend of the River "

A **Friend of the River** is:

- a business owner who protects rivers and Long Island Sound.
- The business pledges to follow best practices to prevent runoff pollution.
- QRWA will recognize all business Friends of the River with advertisement and a decal.
- Obtain pledge form from qrwa@sbcglobal.net or 203 237 2237.

The Quinnipiac River needs you!

Funded in part by the CT DEP through a US EPA nonpoint source grant under §319 Clean Water Act.

The Community Foundation for Greater New Haven
Taking philanthropy to the next generation

How Does My Business Become a **"Friend of the River?"**

A **Friend of the River** business recognizes that urban rivers like the Quinnipiac will improve only if everyone who lives and works along the river and its streams joins the community effort to reduce runoff pollution.
A **Friend of the River** is a business that pledges to follow best practices to reduce runoff pollution:

1. designation of a pollution prevention team/responsible person;
   _____name of person or team

2. sweeping of paved areas 2 times/yr;
   ____agree to sweep 2x/year (spring and fall) ____paved areas not under my control
   contact property owner:_____(name/phone)

3. enclosed storage of potential contaminants, including litter;
   _____method of enclosed storage

4. prohibition of washing equipment, materials, pavement if discharged to storm sewer or surface water;
   ____agree to prohibit washing discharge to storm sewer or nearby water body

5. development of spill control and response plan;
   ____we have a spill control/response plan ____we will develop a plan ____property owner is responsible for spill control_____(name/phone)

6. development of a facility maintenance plan requiring scheduled maintenance/cleaning of catch basins.
   ____we have scheduled maintenance/cleaning of catch basins ____we will develop a schedule
   ____property owner is responsible for catch basins _____(name/phone)
   ____does not apply (no catch basins)

How Will My Business Be Recognized as a **Friend of the River**?

Commercial businesses that agree to cooperate with best management practices will be recognized with a decal identifying them as a **"Friend of the River."** In addition, QRWA will publicly recognize **Friends of the River** businesses in an advertisement. QRWA is targeting the "Stream walked" municipalities in the Quinnipiac basin upstream from New Haven: North Haven, Hamden, Wallingford, Meriden, Cheshire, Southington, Plainville and New Britain. Streamwalk volunteers have already identified stream and river segments affected by runoff pollution.

_____business name
_____address
_____city/state/zip
_____phone_____email
_____person contacted

Funded in part by the CT DEP through a US EPA nonpoint source grant under §319 Clean Water Act.

Community Foundation for GNH

return to: QRWA/P.O. Box 2825/Meriden CT 06450 qrwa@sbcglobal.net

City of Meriden, CT

Meriden City Hall, 142 East Main Street, Meriden, CT 06450

National Trail Days

Wednesday, June 2, 2010 at 10:00 AM
Quinnipiac River Linear Trail and Dossin Beach

Saturday, June 5, 2010
10:00-11:30am
Quinnipiac River Linear Trail and Dossin Beach
Corner of Oregon Road and Rt. 70
Meriden, CT
Meriden National Trail Day Partners:
Meriden Conservation Commission
Meriden Health Department
Meriden Land Trust
Meriden Linear Trails Committee
Quinnipiac River Watershed Association (QRWA)
Meriden's National Trail Partners will showcase
educational exhibits and plans for trail expansion.
Pedometers and walking logs to the
first 75 families to attend!
Wear your walking shoes and
enjoy a morning walk down the trail.
Or, enjoy a canoe and kayak ride courtesy of QRWA!
In the event of rain the event will be cancelled.

QRWA plans to paddle

By: Dan Ivers | Posted: Thursday, July 22, 2010 11:07 pm |

MERIDEN - Members of the Quinnipiac River Watershed Association spend plenty of time working to protect the 38-mile river and the natural beauty surrounding it - a task that involves a lot of hard work. A handful of times each summer, they turn their focus to good old fashioned fun in hopes others can see the fruits of their labor.

QRWA Executive Director Mary Mushinsky heads a team of interns to take the public on free "friendly" canoe rides along the river. After basic safety and paddle training, those who get hooked can get on board for the program's finale: a five-mile trip from Southington to the organization's building along Meriden's Hanover Pond.

Hundreds of locals have strapped on lifejackets and headed out into the river over the last three years, and many are surprised by the beauty they encounter, Mushinsky said. Wildlife sightings have included ospreys and a pair of bald eagles, and many paddlers report feeling calmer and more relaxed after their time on the water.

"You definitely mellow out," she said. "All your troubles just melt off of you."

Meriden resident Carole Bury was among those who turned out for Thursday morning's paddle. The 67-year-old was back for a second trip after taking her first ride last summer.

"It's so peaceful," she said. "I like to canoe, but I don't want to do it by myself ... you can't always be at the beach, but this is the next best thing."

Sessions are held in the morning, with riders gathering at the QRWA's Oregon Road base in Meriden, as well as "after work" sessions beginning at 5 p.m. Mushinsky said weekend sessions often attract parents and grandparents with children in tow.

The organization is able to hire the interns thanks to funding from Meriden's Community Development Block Grant, and takes an average of five out with her on each trip.

Among them was Eric Rivera, who is working his third summer with the program and has come to appreciate the river and its surrounding environment. While the river is not safe to swim in, he said the rides tend to attract people who want to see it preserved and made healthier.

"Most of the people here want to see a difference in the (river)," he said.

No reservations are required for the paddle sessions, although anyone with special needs should call (203) 237-2237 or e-mail qrwa@sbcglobal.net prior to participating. Reservations are required for the five-mile river trips.

divers@record-journal.com

(203) 317-2275

Remaining paddles

Saturday, July 24, 9-11 a.m.

Friday, July 30, 9-11 a.m.

Saturday, July 31, 1-3 p.m.

Sunday, Aug. 1, 1-3 p.m.

Tuesday, Aug. 3, 5-7 p.m.

Saturday, Aug. 7, 9-11 a.m.

Saturday, Aug. 14, 1-5 p.m. 5-mile river trip.

Sunday, Aug. 22, 1-5 p.m. 5-mile river trip.

Gardens to grow environmental awareness

By: Andrew Perlot | Posted: Saturday, April 24, 2010 1:29 pm |

MERIDEN - In the writhing mass of fruit rinds, worms and half-decayed leaves stewing next to the parking lot of the Unitarian Universalist Church on Paddock Avenue, congregation member Liz Hall sees something divine. Pushing aside some moldy potatoes with her pitchfork and spearing a clump of leaves, she said that it's very fitting that members arriving each Sunday for services pull out bags full of food scraps to dump on the compost pile as part of their routine.

"It's the most sacred part," she said, explaining that much as in congregants' lives, within the compost pile there is death, life, decay and rebirth.

The pile, which has been turning itself into rich organic soil using the light of the sun and some worms since September, is slated to be scooped into four 4-by-8-foot wooden raised-bed gardens on the church's north side.

Each is made out of scrap wood from shipping containers and boosts the garden about a foot off the ground.

Hall is spearheading an effort to get members of the congregation growing organic fruits and vegetables as part of a broader effort to reduce the church's environmental impact. "We're all going to have to change," she said of reducing carbon dioxide emissions, which many scientists believe contribute to global warming. "We have to start living differently."

But living differently doesn't have to be all drudgery, said a handful of congregation members gathered with Hall Monday at the site of their garden .

When compared to tasteless, wax-covered produce imported from South America, "you can't beat a fresh tomato," said Meriden resident Despina Deegan, who said she and her husband have been cultivating a garden for years.

Using raised beds offers several advantages, Hall said. Gardeners don't have to bend down as far, turn the soil or worry as much about weeds.

That is appreciated by Trish Schneider, of Southington, who said she loves growing produce but not the backbreaking weeding that goes along with it.

"I like gardens but I don't like the maintenance," she said.

Children in the church's religious education program will grow food in one of the boxes, Hall said, while the other three boxes will be used by adult church members.

A separate 20-by-20-foot plot of tilled earth will also be planted.

Hall wants to keep the effort within the church this year, but next year she plans to reach out to other churches and people in the community to expand the program, she said.

Hall put some thoughts on paper to describe the project: "Gardening is getting in on the sacred communion with the earth. ... Certainly the earth doesn't need gardening to be done but we humans tend to like to putter."

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Beat the peat: Boxing club starts a garden

By: Tiffany Diorio | Posted: Sunday, May 30, 2010 10:50 pm |

MERIDEN - Surrounded by patches of dirt in the middle of the city, a group of enthusiastic kids raises their hands and screams "I do, I do," as Larry Pelletier, head of Beat the Street Community Center asks who wants to plant some peppers.

Pelletier's organization is cultivating a community garden on the corner of Pratt and East Main streets, with the work being done by school-aged participants from the South Colony Street center.

The garden is back from a five-year hiatus, which started when the city was preparing to demolish an old shopping center on the Hub site.

"The city was apprehensive to have us do the program so close to demolition, but now it's done and we're back," Pelletier said Thursday.

Although he is not a gardening enthusiast, Pelletier felt that gardening would be accessible to the youth.

"People at any age can like gardening because it allows them to see something grow and develop that they helped create. It's rewarding," he said.

The garden, like many of the organization's offerings such as boxing, performing arts and Explorers, serves multiple functions.

"The goal of the program is to educate the kids in nutrition, gardening, teamwork and sustainability," Pelletier said. "By seeing things go to fruition they'll gain the confidence to achieve goals."

He also hopes that by planting a garden in one of Meriden's busiest areas they could show the community that the kids are enthusiastic to do something not only for themselves, but for the rest of the city.

Jazmin Marshalek, 8, decided to join Beat the Street to follow after her brother.

"I was too young to join when my brother did, but I couldn't wait to join," Marshalek said.

And when she saw it was offering the community garden program she decided to participate. Marshalek had gardened once before in school and liked it enough to do it again.

The kids aren't the only ones enthusiastic about the effort. Many businesses have come onboard to sponsor it.

Country Farms in Middlefield and Kogut's Florist and Garden Center in Meriden have donated vegetable plants, flowers and seeds. The garden is using water from the nearby TD Bank, and the Hampton Inn donated to supply wooden splices, used to separate the plants. Mayor Michael S. Rohde also thought it was a great idea and allowed use of the plot of land, and the city also supplied some dirt.

Melissa Emma, a community garden volunteer and student in the University of Connecticut's master gardening program, heard about the work from a neighbor and decided that she had to be a part of it.

"I wanted to be involved in Meriden and help out the community. I mean the kids are great. They're so excited to help it's fun," Emma said.

The youth have begun planting tomatoes, cucumbers, corn and peppers and plan to grow pumpkins. Participants will meet up a couple of times a week to weed and maintain the plants.

Eventually, the kids will pick the vegetables to take home. Pelletier also plans to bring out a grill to teach them different ways of preparing the vegetables.

"Five years ago we had kids making their own salsa. I mean this gives them a chance to cook vegetables in ways they never thought of and eat vegetables they've never even heard of," he said.

The garden is expected to last through October.

tdiorio@record-journal.com

(203) 317-2208

Rainbow and brook trout released for opening day

By: Kimberly Primicerio | Posted: Thursday, April 15, 2010 10:43 pm |

MERIDEN - Lines of excited parents and children gathered in front of the hatchery truck parked at Red Bridge ready to release trout for opening day of fishing season on Saturday.

The Harding Hatchery vehicle, filled with rainbow and brook trout from Bethlehem fish farm, stopped periodically on the Quinnipiac River Gorge Trail on Wednesday so approximately 100 volunteers could stock the river. The fish were netted out of water in the back of the truck, which acted as giant fish bowl for the 160 fish ranging from 14 to 22 inches. The trout were then placed in a five-gallon bucket partially filled with water and handed to a volunteer.

"They're trophy size fish," said Peter Picone, the upper river fish stocking chairman for the Quinnipiac River Watershed Association, which hosted the event.

As buckets were handed off to parents, some children tried to carry the heavy pails to the edge of the river. A few struggling steps forward and most buckets were soon handed back off to mom or dad.

"I wanted to teach my daughter about the environment and how the trout get in the water," said Meriden resident Joe Tkacz.

Lucille Lagana of Meriden and her grandchildren, Penny and Oliver Aubin, were given a tagged fish to release. Seven of the 160 fish were tagged. The tags can be redeemed for prizes.

Penny said, "Lettin' the fishy go" was her favorite part of the stocking experience

Prior to the development of the trail, stocking was done from the highly traveled River Road, said Joe Zajac, chairman of the Meriden Linear Trail Committee.

"The trail is an asset to do the stocking," Zajac said. "Every year the amount of people that come doubles."

"This is one of my favorite areas," said volunteer Kevin Diaz of Meriden. "It's close by and serene. You catch a fish and the people walking on the trail get excited." Diaz said he has been catching and releasing fish for years.

One of the largest fish, a 22-inch rainbow trout, was given to Meriden resident Jo Harnois and her family to release. She received her fish in a cooler and said it was quite lively, but as soon as her family let the trout loose it just laid in the river.

"It needs to get acclimated to the water," Harnois said.

In addition to the 160 from the fish farm, the State Department of Environmental Protection stocked the Quinnipiac River with about 1,500 trout, according to Picone.

Although the state legislature doubled the renewal fee for fishing licenses to $40 last year, the fees were reduced to $28 per license Wednesday night when Gov. M. Jodi Rell signed a deficit-cutting bill. The fine for fishing without a license is $77.

kprimicerio@record-journal.com

(203) 317-2279

CITY OF MERIDEN
DEPARTMENT OF PUBLIC WORKS
ROBERT J. BASS, P.E., DIRECTOR
142 EAST MAIN STREET, ROOM 19
MERIDEN, CT. 06450-5667
(203) 630-4018 FAX (203) 630-4025

January 11, 2011

Record-Journal
Crown Street Square
Meriden, Connecticut 06450
Attn: Legal Advertising Department

RE: Public Notice – Storm Water Management Plan

Dear Sir or Madam:

Please publish the attached Legal Notice in the Record-Journal on Saturday, January 22, 2011.

Kindly send the invoice to the Engineering Department, Room 19, 142 East Main Street, Meriden, Connecticut, 06450. In addition, please send an Affidavit of Publication to my attention in Engineering.

Very truly yours,

Marguerite Burris
Administrative Secretary

/mb

Attachment

cc: Robert J. Bass, P.E., Director of Public Works, with attachment
Frank Russo, Manager, Water Pollution Control Facility, with attachment
Pierre L. Blanchet, P.E./L.S., Associate City Engineer, with attachment
Paul A. Kopek, Assistant City Engineer, with attachment
Brian Ennis, P.E., Associate City Engineer, with attachment
Project File – NPDES, with attachment
File

City of Meriden
Notice of Availability
Stormwater Management Plan
Annual Report

The City of Meriden announces the availability of the Annual Report for calendar year 2010, (year 7 of the permit), for the City's Stormwater Management Plan. This report was developed in accordance with the Connecticut Department of Environmental Protection's "General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewers" and outlines the City's compliance with the permit, provides an assessment of the appropriateness of the identified best management practices and the City's progress toward achieving the implementation of each minimum control measure, provides copies of all monitoring data which may have been collected and analyzed, summarizes stormwater activities the City plans to undertake during the next reporting cycle, and outlines any change in identified measurable goals, implementation dates, or other changes.

Copies of the report are available for review between the hours of 8:00 A.M. and 5:00 P.M. in City Hall, 142 East Main Street, Engineering Bureau, Room 19, Ground Floor (203) 630-4018. Written comments regarding the report may be submitted to Pierre Blanchet, City Engineer, until the close of business on February 21, 2011.

Appendix D

Stormwater Monitoring Results

General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Meriden

Mailing Address: 142 East Main St.

Contact Person: Robert Bass Title: Public Works Director Phone: 203-630-4018

Permit Registration #GSM 000038

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): Baldwins Pond - N. Wall St.

759951.95 993114.09

Please circle the appropriate area description: Industrial, Commercial, or (Residential)

Receiving Water (name, basin): Baldwins Pond Harbor Brook Watershed

Time of Start of Discharge: 06:00

Date/Time Collected: 11/4/10 08:30 Water Temperature: 47.3

Person Collecting Sample: Tom Ross Julie Albanese

Storm Magnitude (inches): 0.96 Storm Duration (hours): 30 hours

Date of Previous Storm Event: 10/27/10

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	SM 4500 HB	6.74 ph	Phoenix Environmental Labs.
Rain pH	sm 4500 HB	6.87 pH	
Hardness	200.7	8.3 mg/L	
Conductivity	SM 2510B	50 umhos/cm	
Oil & Grease	1664	< 2.8 mg/L	
COD	SM 5220D	88 mg/L	
Turbidity	180.1	21.8 NTU	
TSS	SM 2540D	21 mg/L	
TP	SM 4500PE	< 0.30 mg/L	
Ammonia	350.1	0.04 mg/L	
TKN	351.1	1.8 mg/L	
NO_3+NO_2	353.2	0.37 mg/L	
E. coli	SM 9223 B	8660 /100 ml/s	

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: ROBERT J BASS PE DIRECTOR OF PUBLIC WORKS

Signature: Robert J Bass Date: 12/20/10

General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Meriden

Mailing Address: 142 East Main St.

Contact Person: Robert Bass Title: Public Works Director Phone: 203-630-4018

Permit Registration #GSM 00003B

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): Hanover Ave @ Park Place

754818.30 982130.19

Please circle the appropriate area description: Industrial, Commercial, or (Residential)

Receiving Water (name, basin): Harbor Brook Watershed

Time of Start of Discharge: 06:00

Date/Time Collected: 11/4/10 09:07 Water Temperature: 50.5

Person Collecting Sample: Tom Ross Julie Albanese

Storm Magnitude (Inches): 0.96 Storm Duration (hours): 30 hours

Date of Previous Storm Event: 10/27/10

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	SM 4500HB	6.80 pH	Phoenix Environmental Labs
Rain pH	SM 4500 HB	6.87 pH	
Hardness	200.7	45.8 mg/L	
Conductivity	SM 2510B	133 umhos/cm	
Oil & Grease	1664	<1.4 mg/L	
COD	SM 5220 D	380 mg/L	
Turbidity	180.1	9.25 NTU	
TSS	SM 2540 D	25 mg/L	
TP	SM 4500 PE	<1.11 mg/L	
Ammonia	350.1	1.8 mg/L	
TKN	351.1	42 mg/L	
NO_3+NO_2	353.2	0.52 mg/L	
E. coli	SM 9223 B	8660 /100mls	

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: ROBERT J BASS, PE, DIRECTOR OF PUBLIC WORKS

Signature: Robert J Bass Date: 12/20/10

General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Meriden
Mailing Address: 142 East Main St.
Contact Person: Robert Bass Title: Public Works Director Phone: 203-630-4018
Permit Registration #GSM 000038

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): E. Main St. @ Research Pkwy.
752283.58 997431.99
Please circle the appropriate area description: Industrial (Commercial) or Residential
Receiving Water (name, basin): Spoon Shop Brook Harbor Brook Watershed
Time of Start of Discharge: 06:00
Date/Time Collected: 10/4/10 08:14 Water Temperature: 47.2
Person Collecting Sample: Tom Ross Julie Albanese
Storm Magnitude (inches): 0.96 Storm Duration (hours): 30 hours
Date of Previous Storm Event: 10/27/10

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	SM 4500 HB	6.88 pH	Phoenix Enviromental Labs
Rain pH	SM 4500 HB	6.87 pH	
Hardness	200.7	10.1 mg/L	
Conductivity	SM 2510 B	46 umhos/cm	
Oil & Grease	1664	<1.4 mg/L	
COD	SM 5220 D	55 mg/L	
Turbidity	180.1	32.9 NTU	
TSS	SM 2540 D	34 mg/L	
TP	SM 4500 PE	0.14 mg/L	
Ammonia	350.1	0.52 mg/L	
TKN	351.1	1.1 mg/L	
NO_3+NO_2	353.2	0.15 mg/L	
E. coli	SM 9223 B	1040 /100 mls	

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: ROBERT J BASS P.E. DIRECTOR OF PUBLIC WORKS
Signature: Robert J Bass Date: 12/20/10

General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Meriden

Mailing Address: 142 East Main St.

Contact Person: Robert Bass Title: Public Works Director Phone: 203-630-4018

Permit Registration #GSM 000038

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): Cook Ave. & Summer St.

754000.37 984145.79

Please circle the appropriate area description: Industrial, (Commercial), or Residential

Receiving Water (name, basin): Harbor Brook Watershed

Time of Start of Discharge: 06:00

Date/Time Collected: 11/4/10 09:40 Water Temperature: 46.4

Person Collecting Sample: Tom Ross Julie Albanese

Storm Magnitude (inches): 0.96 Storm Duration (hours): 30 hours

Date of Previous Storm Event: 10/27/10

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	SM 4500 HB	7.09 pH	Phoenix Environmental Labs
Rain pH	SM 4500 HB	6.87 pH	
Hardness	200.7	38.8 mg/L	
Conductivity	SM 2510 B	120 umhos/cm	
Oil & Grease	1664	21.4 mg/L	
COD	SM 5220 D	57 mg/L	
Turbidity	180.1	15.7 NTU	
TSS	SM 2540 D	25 mg/L	
TP	SM 4500 PE	0.20 mg/L	
Ammonia	350.1	0.12 mg/L	
TKN	351.1	1.1 mg/L	
NO_3+NO_2	353.2	0.56 mg/L	
E. coli	SM 9223 B	>24200/100 mls	

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: ROBERT J BASS PE DIRECTOR OF PUBLIC WORKS

Signature: Robert J Bass Date: 12/20/10

General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Meriden
Mailing Address: 142 East Main St.
Contact Person: Robert Bass Title: Public Works Director Phone: 203-630-4018
Permit Registration #GSM 000038

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): Milk St. - easterly end
749252.86 978991.86
Please circle the appropriate area description: (Industrial) Commercial, or Residential
Receiving Water (name, basin): Quinnipiac River Watershed
Time of Start of Discharge: 06:00
Date/Time Collected: 11/4/10 09:20 Water Temperature: 48.1
Person Collecting Sample: Tom Ross Julie Albanese
Storm Magnitude (inches): 0.96 Storm Duration (hours): 30 hours
Date of Previous Storm Event: 10/27/10

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	sm 4500 HB	7.00 pH	Phoenix Environmental Labs
Rain pH	sm 4500 HB	6.87 pH	
Hardness	200.7	20.1 mg/L	
Conductivity	sm 2510 B	62 umhos/cm	
Oil & Grease	1664	41.4 mg/L	
COD	sm 5220 D	55 mg/L	
Turbidity	180.1	9.29 NTU	
TSS	sm 2540 D	10 mg/L	
TP	sm 4500 PE	0.11 mg/L	
Ammonia	350.1	0.24 mg/L	
TKN	351.1	0.67 mg/L	
NO_3+NO_2	353.2	0.12 mg/L	
E. coli	sm 9223 B	1620 /100 mls	

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: ROBERT J BASS PE DIRECTOR OF PUBLIC WORKS
Signature: Robert J Bass Date: 12/20/10

General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Meriden

Mailing Address: 142 East Main St.

Contact Person: Robert Bass Title: Public Works Director Phone: 203-630-4018

Permit Registration #GSM 000038

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): Center St & Spartan Tool

760841.32 988501.53

Please circle the appropriate area description: (Industrial) Commercial, or Residential

Receiving Water (name, basin): Clark Brook Harbor Brook Watershed

Time of Start of Discharge: 06:00

Date/Time Collected: 11/4/10 08:40 Water Temperature: 44.9

Person Collecting Sample: Tom Ross Julie Albanese

Storm Magnitude (inches): 0.96 Storm Duration (hours): 30 hours

Date of Previous Storm Event: 10/27/10

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	sm 4500 HB	6.44 pH	Phoenix Environmental Labs
Rain pH	sm 4500 HB	6.87 pH	
Hardness	200.7	2.9 mg/L	
Conductivity	sm 2510 B	14 umhos/cm	
Oil & Grease	1664	< 1.6 mg/L	
COD	sm 5220 D	16 mg/L	
Turbidity	180.1	8.63 NTU	
TSS	sm 2540 D	11 mg/L	
TP	sm 4500 PE	< 0.02 mg/L	
Ammonia	350.1	0.22 mg/L	
TKN	351.1	0.46 mg/L	
NO_3+NO_2	353.2	0.09 mg/L	
E. coli	sm 9223 B	200 /100 mls	

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: ROBERT J BASS Director of Public Works

Signature: Robert J Bass Date: 12/20/10