

**Municipality/Organization: Town of Chelmsford**

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**EPA NPDES Permit Number: MAR041185**

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**MaDEP Transmittal Number: W-039848**

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**Annual Report Number**

**& Reporting Period: No. 14: March 2016-March 2017**

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## NPDES PII Small MS4 General Permit Annual Report

### Part I. General Information

Contact Person: Stephen Jahnle

Title: Assistant Director of Public Works

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Telephone #: 978-250-5228

Email: sjahnle@townofchelmsford.us

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#### Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: 

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Printed Name: STEPHEN E. JAHNLE

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Title: ASSISTANT DPW DIRECTOR

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Date: 4/25/17

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## **Part II. Self-Assessment**

The Town of Chelmsford has completed year 14 of the Stormwater Phase 2 program. Much of this past year's activities have been in preparation for the upcoming 2016 Massachusetts Small MS4 General Permit.

To fund the increased requirements of the new permit, Chelmsford determined that forming a stormwater utility is the best plan. The Chelmsford Department of Public Works was working diligently on presenting information on the new MS4 permit to various Town groups in hopes Town Meeting will vote to approve the creation of a stormwater enterprise. This would fund a new stormwater department at the Department of Public Works. The new department would be responsible for compliance with the new permit.

Chelmsford has been involved with the Northern Middlesex Stormwater Collaborative (NMSC). We are one of 13 communities to be involved in this regional stormwater collaborative. The NMSC has joined the Massachusetts Statewide Stormwater Coalition which has increased the resources available to each community. The primary goal is to establish and implement a regional stormwater collaborative to address stormwater issues using an innovative approach that reduces costs and fosters regional cooperation and coordination. For a detailed list of activities (See Appendix)

NMSC has been paramount to furthering our ability to improve Chelmsford's MS4 program in the following ways:

1. Represented Chelmsford in the Statewide Stormwater Coalition meetings.
2. Expanded public education and outreach program including:
  - a. Created a brochure for pet waste.
  - b. Assisted in Enviroscape demonstrations.
  - c. Developed and broadcast two public service announcement videos.
3. Offered over 10 training sessions on stormwater for all municipal staff and officials.
4. GIS and other tools:
  - a. Developed IDDE wet and dry weather outfall inspection forms, as well as forms for catch basins, manholes, BMPs and drain pipes in a People GIS mobile web mapping system.
  - b. Developed forms in People GIS to assist in water quality field screening.
  - c. Provided training on implementing the People GIS mobile web mapping system.

Being a part of NMSC has allowed the 13 communities to share resources and has eliminated the need for duplicative activities. This collaborative has been most valuable to Chelmsford's success in the stormwater program.

**Progress was made in the following areas:**

**BMP # 1-1: Stormwater Flyers (See Appendix)**

- Stormwater flyers were handed out at the Puppet Show to celebrate Earth Day on May 7, 2016.
- New Pet waste flyer created and distributed at the Town Clerk's office as residents were getting their pet license in early 2017.

**BMP # 1-2: Stormwater Lesson Plan for students. (See Appendix)**

- Each year, the lesson plans get improved upon. The lessons included information on stormwater pollution, watersheds, and a demonstration of the Enviroscape Model. The students got a hands-on lesson about point-source and non-point-source pollution. The Town Engineer conducted stormwater informational sessions for:
  - 8 Students at the Library in July 2016
  - 200 Fifth Grade Students at Parker Middle School in March 2017

**BMP # 1-4: Stormwater Media Campaign.**

- Made various presentations on our Stormwater Management Program. Meetings are on cable TV and YouTube. YouTube Video <https://www.youtube.com/watch?v=CiucPcb4hel>
  - January 9, 2017 – Board of Selectmen
  - March 16, 2017 – Finance Committee
  - April 10, 2017 – Board of Selectmen
  - April 24, 2017 – Town Meeting
- Presented information about stormwater during a local TV program run by the Town Manager. The program was run through the month of February 2017. See it here <http://vp.telvue.com/preview?id=T01497&video=302827>

**BMP # 1-6: Stormwater Web Page.**

- NMSC has a webpage for all the participating communities. [www.nmstormwater.org](http://www.nmstormwater.org)
- The Town's Stormwater Website is updated annually. <http://www.townofchelmsford.us/index.aspx?NID=375> This year updates included information on the new 2016 MS4 Permit and the formation of a stormwater utility.

**BMP # 2-1: Stormwater Traveling Display. (See Appendix)**

- Stormwater Display and Enviroscape demonstrations at the Library, Volunteer Fair and at the Farmer's Market. There was also a sign-up sheet for volunteers for the storm drain stenciling program. Summer 2016 to March 2017
- Library sponsored programs for "Living Green". May 2016

**BMP # 2-2: Stormwater Poster Contest.**

- Third Grade Stormwater Posters on display in the DPW lobby during January-March 2017. Poster contest is held annually.

**BMP # 2-6: Provide Support for clean-up and collection days. (See Appendix)**

- Hazardous waste collection day. April 24, 2016
- Annual Town Cleanup day – 200 bags of trash picked up by 30 volunteers
- Chelmsford renewed involvement in the Rain Barrel Community Program offering discounted Rain Barrels to the residents. Rain barrels are advertised on cable TV, website, Facebook and emails. 60 Barrels sold at the event in May 2016, more were sold to residents after the event in other towns.

**BMP # 2-7: Develop a Catch Basin Stenciling Program.**

- Organized a stenciling program and promoted it at the Farmer's Market in the summer, on Cable TV year-round, on the Town website, on Facebook, in the newspaper and by email. 20 Volunteers signed up.

**BMP # 3-1: Create a stormwater system map. (See Appendix)**

- With the help of 2 college students and 1 senior citizen, the Town's drain map was substantially improved. The interns researched plans to make the drain map more complete. Once the storm drains were mapped, the drain lines connecting them were mapped as well. The storm drains, manholes and headwalls were each given a unique identifier which included the outfall ID number and the type of structure.
- With help from a grant, from Massachusetts Interlocal Insurance Association (MIIA), 123 unmapped areas in Town were revised to include drains shown on record plans. (Grant amount \$19,000) A contract was secured with CGIS, Inc. to revise our drain features in GIS.
- Regional stormwater mapping was done by NMCOG.
- The online utility application created last year for the DPW staff has been used thoroughly. This online map will be extremely beneficial in the IDDE program going forward. Additionally, the Town has elected to share the mapped drain features on the Town's public GIS map. More details are available in the staff's utility app. Annual updates are made to the drain features in these maps. This makes residents more aware of the drainage infrastructure. We have received a lot of positive feedback with the addition of this GIS layer.

**BMP # 3-2: Create an Illicit Discharge Inspection/Elimination Plan. (See Appendix)**

- Interns aided the Town Engineering in inspecting and sampling outfalls – summer 2016.
  - Hired 2 College Students and 1 Senior Citizen to help with the stormwater mapping and outfall inspections.
  - 71 outfalls (as of 10/27/2016) were inspected and photographed– no illicit discharges were found.
- Continued use of "See Click Fix" as a citizen request tracker for residents to use when reporting non-emergency issues around the Town using their smartphone, tablet or computer. They can report concerns such as, drainage issues, street sweeping requests, wetland safety concerns, illicit discharges or illegal dumping.

**BMP # 4-2: Plan Reviews**

- All plans are reviewed for stormwater quality and quantity and for erosion control
- SWPPP
  - Projects which disturb more than one acre must submit a SWPPP to be reviewed by the Engineering Division prior to being issued a building permit.
- All projects which add a new single family house must add dry-wells and driveway drains to address the stormwater concerns.

**BMP # 6-3: Stormwater pollution prevention in municipal operations. (Removing directly connected impervious area)**

(See Appendix)

- The lot behind the main Library has been renovated to include a Carriage House, small parking area, walkway, seating and a bio-retention area to capture, treat and infiltrate the parking lot runoff.
- Old Center Fire station has been torn down and a park with a lovely garden has been constructed in its place.
- Improvements have been made to the municipal grounds fertilization plan to reduce waste.

**BMP # 6-4: DPW Training Program (See Appendix)**

- DPW staff attended the training program on Stormwater Management

**The following BMPS are not completely fulfilled:**

**BMP # 2-3: Stormwater photo contest for high school students.** We have decided to hold a yearly poster contest with the students that participate in the classroom lessons. It is a great way to see how much the students learn during the presentation. They really enjoy it.

**BMP # 4-1: Development of an erosion and sediment control by-law for construction projects.** Currently the Town has authority through the site plan process to regulate erosion and sediment control based upon approvals for a specific project. A stand-alone bylaw is not necessary at this time. The new permit will require us to develop a new stormwater bylaw.

**BMP # 5-1: Development of a by-law to require certain construction sites to follow MADEP Stormwater Standards 2, 3, 4 and 7.** The Town currently has authority to fine property owners in violation of their approved operation and maintenance manuals included with site plan or subdivision approvals. Our site plan stormwater by-law was re-written to clarify the language so that it specifically states compliance with MassDEP Stormwater Standards. A stand-alone bylaw is not necessary at this time. We will develop a new bylaw to comply with the requirements of the new permit.

### Part III. Summary of Minimum Control Measures

#### 1. Public Education and Outreach

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year
1-1 Revised	Stormwater flyer/survey distributed to residents	DPW/Suasco	Distribute flyers to a minimum of 75% of the residents	Complete. Flyers have been distributed to residents and copies are available with the traveling display and online via the town web site.	Continued distribution of flyers and displaying material to help awareness.
1-2 Revised	Stormwater lesson plan for 5 <sup>th</sup> grade students	DPW/Suasco	Develop and distribute lesson plan to 5 <sup>th</sup> grade	Completed. Annually teach all the 5 <sup>th</sup> graders. See Self-Assessment	Continuation of new lesson plan in the schools.
1-3 Revised	Stormwater flyer to business community	DPW/Suasco	Flyer distributed to a minimum of 50% of businesses and a logo to be displayed for compliance	Completed in Year 11.	Update and republish
1-4 Revised	Stormwater media campaign	DPW/Suasco	Develop a media information packet to be distributed	Complete.	Update and republish ad campaign
1-5 Revised	Stormwater video	DPW/Suasco	Show a stormwater video at one public meeting and re-air video on local cable	Complete. Video runs twice a year on local cable and is available on YouTube.	Run ad campaign twice a year on local cable focusing on gardening in the spring and good housekeeping in the fall.
1-6 Revised	Stormwater web page	DPW	Creation of a stormwater web page	Complete. Annually Updated <a href="http://www.townofchelmsford.us/375/Stormwater">http://www.townofchelmsford.us/375/Stormwater</a>	Maintain website
1-7 Revised	Provide brochures on recycling, composting and water conservation	DPW/Recycling	Maintain a supply of brochures	Complete. Currently have a supply of brochures from the SuAsCo Watershed, EPA, Mass DEP and other organizations available	Continuation of current supply

## 2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year
2-1 Revised	Stormwater traveling display	DPW/SuAsCo	Display and circulate traveling display at various buildings and events	Complete. Rotation throughout town buildings and events. Demonstrations were done at the farmer's market, volunteer fair and Library.	Continued rotation throughout town buildings and events.
2-2 Revised	Stormwater poster contest for 5 <sup>th</sup> grade students	DPW/SuAsCo	Hold a stormwater awareness poster contest, judge and display it.	3 <sup>rd</sup> graders made posters on Stormwater Pollution based on what they learned in the lesson from the Town Engineer. The posters were displayed at the DPW.	Continue to offer the poster project to students who attend the stormwater presentations.
2-3 Revised	Stormwater photo contest for high school students	DPW/Suasco	A stormwater photo contest is held, judged, and displayed	SuAsCo has decided to abandon the contest. The poster contest has become an annual activity, and we hope to continue it.	We are exploring other options for an "art contest".
2-4 Revised	Stormwater Summit event	DPW/Suasco	Hold a local Stormwater event	Complete. Several presentations have been made to the Board of Selectmen and Finance Committee about the new requirements of the MS4 Permit.	Continue to hold summits as possible.
2-5	Participate in Suasco Super Summit and conduct and evaluation and assessment survey of public stormwater awareness.	DPW/SuAsCo	Town participation in the Suasco summit and evaluation and assessment survey results compiled.	Currently waiting on information for the summit event.	Hold Summit once available.
2-6 Revised	Provide support for clean up and collection days	DPW/Recycling	Provide support at least twice per year	Complete. Support has been provided for brush drop off, Haz-mat, town clean up. See self-assessment for more information.	Continued support for these days.
2-7	Develop a catch basin stenciling program	DPW	Develop a program to stencil catch basins in priority areas	Complete. See self-assessment	Continue stenciling program

### 3. Illicit Discharge Detection and Elimination

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)</b>	<b>Planned Activities – Permit Year</b>
3-1	Create a stormwater system map	DPW	Develop a stormwater system map, maintain and update as needed	Continued mapping of our stormwater system. See self-assessment for more detailed info.	See self-assessment. Continued mapping and updating of existing information.
Revised					
3-2	Create an illicit discharge inspection/elimination plan	DPW	Develop a plan to locate and eliminate illicit and illegal connections	71 Outfall inspections performed See self-assessment for more detailed info.	Inspect all 650 outfalls
Revised					
3-3	Develop and implement an ordinance that prohibits illicit and illegal connections	DPW	An ordinance is developed to prevent illicit and illegal stormwater and non-stormwater connections to the system	Complete. Implementing bylaw.	Continue to implement bylaw and review for any potential improvements.
Revised					
3-4	Increase number of Haz Mat days	Recycling/DPW	Make disposal easier of hazardous materials	Complete. The recycling office has entered into an agreement with other towns to provide homeowners more opportunities to dispose of their Haz. Waste. There are collection bins located at Town Hall for recycling of light bulbs, batteries, cardboard, etc.	Continued support for these events.
Revised					
Revised					

#### 4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year
4-1	Development of an erosion and sediment control by-law for all construction projects	DPW/Community Development	Develop and implement a by-law	See self-assessment.	Review current requirements and revise as necessary.
Revised					
4-2	Plan reviews	DPW	All plans reviewed for water quality issues and concerns	Complete. Currently reviewing plans for standard erosion and sedimentation protection. All redevelopment designs must show improvements to water quality and quantity of runoff.	Continued review of plans for revised current stormwater regulations. Develop a plan review checklist.
Revised					
4-3	Site inspections of construction projects	DPW/Community Development	Periodic inspection of ongoing sites	Complete. Inspectors trained on Stormwater runoff control. Inspectors have an online utility app. which allows them to see the entire stormwater system and sewer system so that they can quickly assess the potential dangers of any hazardous situations.	Continued inspections and enforcement of the proposed erosion and sediment control plans presented by the developers. Develop an inspection form.
Revised					
4-4	All work within the public right of way inspected to prevent erosion and sediment build up	DPW	Minimize and/or prevent sediment from entering the public right of way	Complete. Require all contractors to provide a rip-rap construction entrance, periodically sweep streets and install silt sack protection to existing basins where necessary. Inspectors trained on stormwater runoff control to the ROW.	Continued inspections and enforcement.
Revised					
Revised					

### 5. Post-Construction Stormwater Management in New Development and Redevelopment

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year
5-1	Develop a by-law to require certain construction sites to follow MADEP stormwater standards 2,3,4, and 7	DPW/ Community Development	All regulated projects required to follow same standards	See self-assessment.	Review current requirements and revise as necessary.
Revised					
5-3	Post construction inspection of regulated projects	DPW	Inspections are performed to ensure proper construction and that facilities are working as they where proposed	Design engineers are required to submit as-builts and letters certifying construction has been conducted in accordance with the plans. Follow-up inspections conducted by DPW staff to ensure the facilities are working as proposed.	Continued inspection and recommendation to private system owners that they maintain their systems in accordance with the design or proposed post construction plan along with the approved operations and maintenance manual.
Revised					
5-2	Develop a list of BMP's for the post construction maintenance schedule	DPW	Develop a list as a guideline for post construction maintenance	We have worked with the local engineers and developers to have parameters for post construction maintenance of facilities.	Continued work on a finalized list to be added into our regulations. Work with private property owners on maintenance of systems.
Revised					
Revised					
Revised					

## 6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 14 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year
6-1	Catch Basin cleaning	DPW	Continuation of current catch basin cleaning schedule	Complete. Every catch basin was cleaned last year. This task is contracted to a private company.	Continue to clean each catch basin.
Revised					
6-2	Street Sweeping	DPW	Continuation of the current street sweeping program	Complete. All public streets, sidewalks and municipal parking lots are swept utilizing the town owned and operated sweepers	Continued Spring sweeping schedule
Revised					
6-3	Stormwater pollution plan in place and in effect for DPW facility	DPW	Maintain the current plan and update as needed	Continued maintenance of oil separators, traps and containment systems.	Ongoing operation and maintenance
Revised					
6-4	Develop a training program for DPW employees	DPW	Employee training program established	Complete. Training took place on March 29, 2017. NMSC hosted the training by Tighe & Bond at the Westford DPW building.	Continue training to all new staff.
Revised					
6-5	Stormwater system mapping used to identify critical areas for catch basin cleaning	DPW	Stormwater system mapping used to optimize basin cleaning procedures	Online stormwater system map in GIS.	Continue maintenance of the online stormwater GIS map.
6-6	Identify catch basins in poor condition and repair or replace those structures	DPW	Utilize mapping to identify facilities in poor condition and repair or replace a minimum of 5 per year	Complete. Repaired or replaced approximately 33 drainage structures, cleaned out approximately 8 culverts, repaired 2 headwalls and improved drainage on 8 roads.	Ongoing maintenance
Revised					
6-7	DPW drainage maintenance permit	DPW	Renew drainage facility maintenance permit	No dredging was done over the winter.	Renew dredging permit as needed.
Revised					

**Assessment of the appropriateness of the selected BMPs.**

The Best Management Practices (BMPs) selected for the stormwater program appear to be appropriate. Anticipation of a new NPDES MS4 permit has caused us to improve our current Stormwater Management Program. We believe that we have a head start for the requirements of the new MS4 permit. Furthermore, the decision to join other municipalities in stormwater collaboratives allows the Town the opportunity to further improve our stormwater program while at the same time save money by sharing resources.

**Reference any reliance on another entity for achieving any measurable goals:**

**SUASCO** – educational material and displays

**Northern Middlesex County of Governments (NMCOG)** – **Northern Middlesex Stormwater Collaborative (NMSC)** - Regional Stormwater Collaborative. See Appendix for full list of activities.

**Massachusetts Interlocal Insurance Association MIIA**- \$21,150 grant for improvements to our GIS mapping of Sewer and Stormwater infrastructure.

**AppGeo Inc.** – Consultant who created our mobile utility app. and is hosting our GIS map for the residents.

**CGIS, Inc.** – Consultant who performed the updates to our GIS mapping of Sewer and Stormwater infrastructure.

**APPENDIX TO  
CHELMSFORD, MASSACHUSETTS  
ANNUAL STORMWATER REPORT  
YR- 14  
MARCH 2016 TO MARCH 2017**

## NMSC Activities (April 1, 2016-March 31, 2017)

- A. Trainings for staff and officials.
1. Organized training on good housekeeping practices, IDDE, catch basin cleaning and data recording, and field testing. The training was provided by Tighe & Bond, (3/29/2017)
  2. Participated in MS4 Stormwater seminar, held by CEI in Marlborough (3/30/2017)
  3. Participated in EPA's "Soak Up the Rain" webinar held on (3/22/17)
  4. Participated in EPA webcast: "Making Stormwater Work for You" (3/14/17)
  5. Participated in the US Forest Service and US Fish and Wildlife webinar on Flood Resiliency and Stream Restoration (3/8/17)
  6. Participated in EPA webcast: "Weathering Change: Local Solutions for Strong Communities" (2/22/17)
  7. Participated in the Statewide Stormwater Collaborative Technical Subcommittee conference call (2/22/17)
  8. Participated in EPA webcast: "Incorporating Climate Solutions into Adaptation" (2/19/17)
  9. Participated in EPA webinar on Green Infrastructure Best Practices and Soak Up the Rain webinar: "The Perfect Storm" (1/25/17)
  10. Participated in Urban Waters Learning Network webinar: "Enlisting Citizens to Report Illicit Discharges" (12/6/16)
  11. Participated in the Water Environment Federation webinar: "Phase II MS4 Permit Remand Rule" (12/6/16)
  12. Provided information on the EPA Water Quality Modeling Webinar: Sediment Modeling Part II, scheduled for 11/16/16
  13. Attended New England Stormwater Finance Forum held at UNH (11/15/2-16 - 11/16/2016)
  14. Distributed information regarding the Massachusetts Watershed Coalition Workshop on "Cost Effective Stormwater Solutions for Cities and Towns". (11/8/2016)
  15. Attended Lowell Sustainability meeting (10/22/2016)
  16. Provide information on the EPA Office of Research and Development's webinar on its "toolkit" of five models and tools for planning, designing and evaluating green infrastructure, scheduled for 10/26/2016
  17. Distributed information on the "Water Scarcity as a Catalyst for Integrated Water Management" webinar hosted by the Urban Waters Learning Network (10/25/2016)
  18. Distributed information on the EPA's Green Infrastructure webinar scheduled for 10/25/2016
  19. Participated in River Network webinar: "Revitalizing Urban Watersheds" (9/14/2016)
  20. Participated in EPA Webinar: "Integrated Water management-What is it and how can it benefit your community" (8/24/16)
  21. Attended MS4 Field Training, Needham (6/29/2016)
  22. Participated in EPA webinar: "Emerging Trends in Green Infrastructure" (6/22/2016)
  23. Participated in EPA webinar: "Green Street: Filtering and Slowing Stormwater, Revitalizing Neighborhoods, and Making Streets Safer" (5/11/2016)
  24. Attended workshop through Baystate Roads Program, "Creating a Revenue Stream for Stormwater Management" held in Salem (4/26/2016)
  25. Participated in EPA webinar: "Greening Your Backyard-Stormwater Solutions for Homeowners and Communities"
- B. Public Education and Outreach.
1. Created a customizable brochure on pet waste management
  2. Created a draft brochure on septic system maintenance and management
  3. Presented at EPA webinar on stormwater public outreach best practices on June 23<sup>rd</sup> at the EPA Boston office
  4. Provided public outreach at the Merrifest held on August 26, 2016 in Lawrence
  5. Provided public service announce to Lawrence for local access television
  6. Provided outreach and education at the Southeast Asian Water Festival held on August 20, 2016
  7. Provided EnviroScape model to participating communities for various community events
  8. Participated in Lowell's Sustainability and Earth Day Events
- C. Procurement
1. Purchased PeopleGIS tool for interested communities
  2. Revised draft procurement document for catch basin cleaning and disposal of materials
- D. GIS and other tools:
1. Presented information on the MAPC Stormwater Toolkit for generating GIS outfall catchment areas using publicly-available data
  2. Prepared summary table of final MS4 permit mapping requirements and timelines, provided comparison to draft permit
  3. Completed draft regional receiving waters flow lines dataset with 305(b)/303(d) Integrated List of Waters use impairments and TMDL information
  4. Researched Esri ArcGIS solutions for stormwater mapping and inspections
  5. Invited community staff to attend ArcGIS Mobile Workshop to learn about implementing ArcGIS Collector and Survey123 for stormwater infrastructure mapping and inspections
  6. Set up ArcGIS Collector outfall inspection mobile app for testing, utilized on smartphone with external sub-meter GPS receiver and iPad using smartphone as personal WiFi hotspot
- E. Grant Opportunities:
1. Distributed information on the Massachusetts Fish and Game's Culvert Replacement Grant opportunity
  2. Distributed information on the National Wildlife Federation's Five Star and Urban Waters Restoration Grant program
  3. Distributed information on the DEP 604(b) and 319 grant program
  4. Attended DEP pre-application meeting on the 604(b) and 319 program at the DEP Worcester office
  5. Distributed information on the Nature Conservancy's "Nature Works Everywhere" grant program for K-12 schools
- F. Administrative:
1. Organized and conducted NMSC meetings on the following dates:
    - 4/7/2016, 5/24/2016, 10/28/2016, 2/1/17
  2. Attended DEP pre-application meeting on the 604(b) and 319 program at the DEP Worcester office and provided information to NMSC members
  3. Provided NMSC members with information on the National Wildlife Federation's Five Star and Urban Waters Restoration Grant Program

**STORMWATER LESSON AT THE LIBRARY – SPRING 2016**



# The Chelmsford Community Center at North Town Hall Presents

## Turtle's New Home

A Free Puppet Show to Celebrate Earth Day

Saturday May 7<sup>th</sup>, 4-5 p.m.

PRESS RELEASE

Chelmsford Community Center

31 Princeton St.

North Chelmsford, MA 01863

Contacts: Laura Lee

Laura.lee@comcast.net or (978)656-1853

DATE: April 14, 2016 For Immediate Release

please run several times

**A Free Puppet Show on Saturday May 7th from 4-5 p.m.**

**Celebrate Earth Day at the Chelmsford Community Center.** We are excited to bring award-winning puppeteer, artist, naturalist and author, Deborah Costine, to the Chelmsford Community Center. We will learn about wetlands habitat, the Blanding's Turtle, the Beaver and the Blue Spotted Salamander as they journey to find a new home. We will also meet a little boy named Edward and his nature-loving babysitter Rachel, who teaches him how to look closely at nature for signs of animals and their activities. Before the performance, the audience will meet the cast and learn some unique characteristics of each animal.

Donations are welcome. For more information please call (978) 656-1853.

The Chelmsford Community Center at North Town Hall is located at 31 Princeton St., North Chelmsford and is handicap accessible. Free parking is located in the lot next to the Fire Station, entering from Washington St. This program is sponsored by The North Chelmsford Village Association (NCVA).

# PET WASTE BROCHURE

## HANDED TO RESIDENTS WHO RENEW THEIR DOG LICENSE

### Clean Up Your Pet's Waste and Protect Our Water Supply

#### Chelmsford Town Bylaw §11-7-3

Failure to remove pet waste:	
First Offense in a calendar year	\$50
Second offense in a calendar year	\$75
Third offense in a calendar year	\$125



### Proper Disposal of Dog Waste



#### What Can You Do?

- **Bring It!** Carry a scooper bag when you walk your dog.
- **Scoop It!** Use the baggie like a glove, scoop the poop, invert and seal the bag.
- **Toss It!** It belongs in the trash.
- **Place a Sign!** Put a "Scoop the Poop" sign in your yard to encourage your neighbors to scoop it up too!

Northern Middlesex  
**STORMWATER COLLABORATIVE**

[www.norstormwater.org](http://www.norstormwater.org)

Member Community of the  
Northern Middlesex Stormwater  
Collaborative

### Protect Our Water Supply and Your Health

#### Leave no pile behind!

Be sure to clean up after your pet



## What's the Problem?



Pet waste is a major source of water contamination and contains harmful bacteria and parasites. Dog feces can contain fecal coliform bacteria, which can spread diseases like Giardia, Salmonella, and Campylobacter, causing serious illness in humans.

Rain and water from melting snow flows across yards, dog parks, and other surfaces on its way to our water bodies, via our streets and storm drains.

Be a responsible pet owner and clean up your pet's waste every time. Never dispose of dog waste in a catch basin, which flows directly into our waterways. Tips for proper disposal of dog waste are detailed on the back of this brochure.



#### What about pet waste that is left on the ground?

- It's toxic to plants and can create dead spots on the lawn.
- It can contain e-coli, roundworm, giardia, and other germs that make people and pets sick.
- Some of these disease-causing organisms remain infectious in the soil for weeks or years.
- It washes from land and into our waterways and ground water, causing contamination.
- It causes harmful algae and aquatic weeds to grow and reduces oxygen in the water for fish and other wildlife.



#### But I'm A Cat Lover...

Proper disposal of cat waste is also important. Dangers may lurk inside your cat's litter box, making proper disposal a must for good health. Some cat feces may contain the bacteria *Toxoplasma gondii*, which has been linked to many health problems and is especially dangerous for pregnant women. Take the necessary steps to properly handle cat litter:

- Scoop your cat's waste into a receptacle lined with a plastic bag.
- Tie off the plastic bag and deposit it into an outside waste can.
- Wash your cat's scoop with soap and warm water. Use disposable paper towels to eliminate the possibility of transferring waste to a cleaning rag. Wear rubber gloves while performing this step.
- Clean your cat's litter pan monthly if you're using clumping litter, or weekly if you're using the non-clumping brands. Use soap, warm water, and paper towels. Dispose of the paper towels in a plastic bag and be it off.

# DEMONSTRATION AND SIGN-UP FOR CATCH BASIN STENCILING

## FARMERS MARKET DISPLAY, – SUMMER 2016



## VOLUNTEER FAIR – MARCH 2017



# LIVING GREEN – SERIES OF WORKSHOPS AT THE LIBRARY

## Event Details

[Return to Previous](#)

### "The Quest for a Sustainable Life Style: Trying to Live Green, Fight Climate Change, Beat Corporate Brainwashing and Save the Planet"



**Thursday, May 12**

"Environmental sustainability" is more than a buzzword in the home of Don and Betty Galya. They are "walking the walk!" And recently Don released a book, in Kindle format, entitled "Sustainability Quest: Trying to Live Green, Fight Climate Change, Beat Corporate Brainwashing and Save the Planet from Giant Cockroaches." Don Galya is a licensed professional engineer who worked for over 40 years as an environmental scientist/engineer/consultant. He has degrees in oceanography and environmental science. But he didn't learn about sustainable living in college or in the office. He learned it the simple, old-fashioned way - from the example of others and by walking, bicycling, gardening, conserving energy and saving and repairing everything that might be useful. And by following the old adage, "Use it up, wear it out, make it do or do without."

**Date:** May 12, 2016

**Time:** 7:00 PM - 8:45 PM

**Address:** Chelmsford Public Library  
25 Boston Road  
Chelmsford, MA 01824

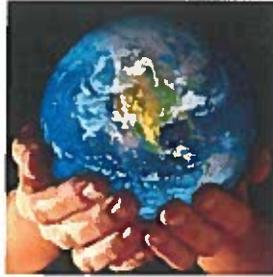
**Contact:** [978-256-5521](tel:978-256-5521)

**Email:** [Email](#)

**Cost:** Free and open to the public.

**Links:** <http://chelmsfordlibrary.evanced.info/signup/EventId=12401&lib=>

# CHELMSFORD TOWN-WIDE CLEANUP & HAZARDOUS WASTE DAY FLYERS



## Chelmsford Town-Wide Cleanup Sunday, April 24<sup>th</sup>, 2016

Join us in cleaning up our town!  
The snow is melting to reveal  
the roadside waste that  
accumulated over the winter.

Date: Sunday, April 24, 2016  
Time: Throughout the day  
Where: All roads and parks  
What: Town Litter Cleanup 

Help to make Chelmsford a  
beautiful town. Please pick up  
trash from your street. If you  
need them, bags and gloves are  
available from the Department  
of Public Works. Put yellow  
bags out with your trash and  
report large items to the DPW.

Pick up bags from the office of  
Recycling and Solid Waste  
9 Alpha Road, Chelmsford  
Monday-Friday 9am till Noon

For more information:  
[nparlee@TownofChelmsford.us](mailto:nparlee@TownofChelmsford.us)  
 or 978-250-5203



### Household Hazardous Waste Collection Day

*Town Hall Lower Parking Lot  
Enter from Wilson Street or Chelmsford Street*

**Saturday  
April 30, 2016  
9:00 am - 1:00 pm**

*Any questions, please call 978-250-5241 / 978-250-5203  
Chelmsford Board of Health / Office of Recycling and Solid Waste*

# RAIN BARREL DISCOUNT PROGRAM OFFERED TO CHELMSFORD RESIDENTS APRIL, 2016

## Chelmsford public works to partner with Great American Rain Barrel Co.



Count: 0 Recommend: 0



Zoom

The Chelmsford Department of Public Works will partner with the Great American Rain Barrel Company in Hyde Park to offer recycled rain barrels to residents, as part of a communitywide conservation and sustainability program. Courtesy Photo

By Submitted to the Independent

Posted Mar, 24, 2016 at 1:06 PM

CHELMSFORD

The Chelmsford Department of Public Works is partnering with the Great American Rain Barrel Company in Hyde Park to offer recycled rain barrels to residents, as part of a communitywide conservation and sustainability program.

"We are bringing rain barrels to Chelmsford to help homeowners reduce their water costs and help our community protect their water resources," said Christina Papadopoulos, Chelmsford town engineer. "Rain barrels are an effective way to eliminate waste from our water supplies, help homeowners supplement their own usage, and we hope to see one at every downspout in Chelmsford."

In New England, residents continue to experience exponential rate increases in both water and sewer. Water usage can spike as much as 60 percent from watering plants, lawns, filling pools and washing cars. The use of rain barrels offset that usage, saving homeowner's money and helping the community manage water supplies. Rain barrels can also reduce runoff. In watershed

areas, runoff from homes and developments can harm existing water sources. Overtaxed storm sewers discharge polluted runoff.

"We have been selling barrels for 20 years, and we are seeing a very positive trend," said Suzanne Gebelin, owner of the Great American Rain Barrel Company. "More and more communities nationwide, like Chelmsford, are bringing large scale programs to their towns, encouraging more residents to conserve water, but also helping their town mitigate pollution in the water supplies on a larger scale."

Households see a benefit, too. As residents see rising utility costs, they find affordable ways to offset some of those expenses; such as low energy light bulbs, energy efficient appliances, compost bins and rain barrels. Rain barrels connect easily to downspouts and collect and store significant amounts of water. In this region, there is typically 16" of rain from May 1 - Sep. 30. For every inch of rainfall, a 1,000-square-foot surface can collect 620 gallons of water; that means that an average roof of 2,400 square feet could see more than 20,000 gallons of fresh rainwater splashing over its surface during that time period. Based on the average roof size, more than two 60-gallon



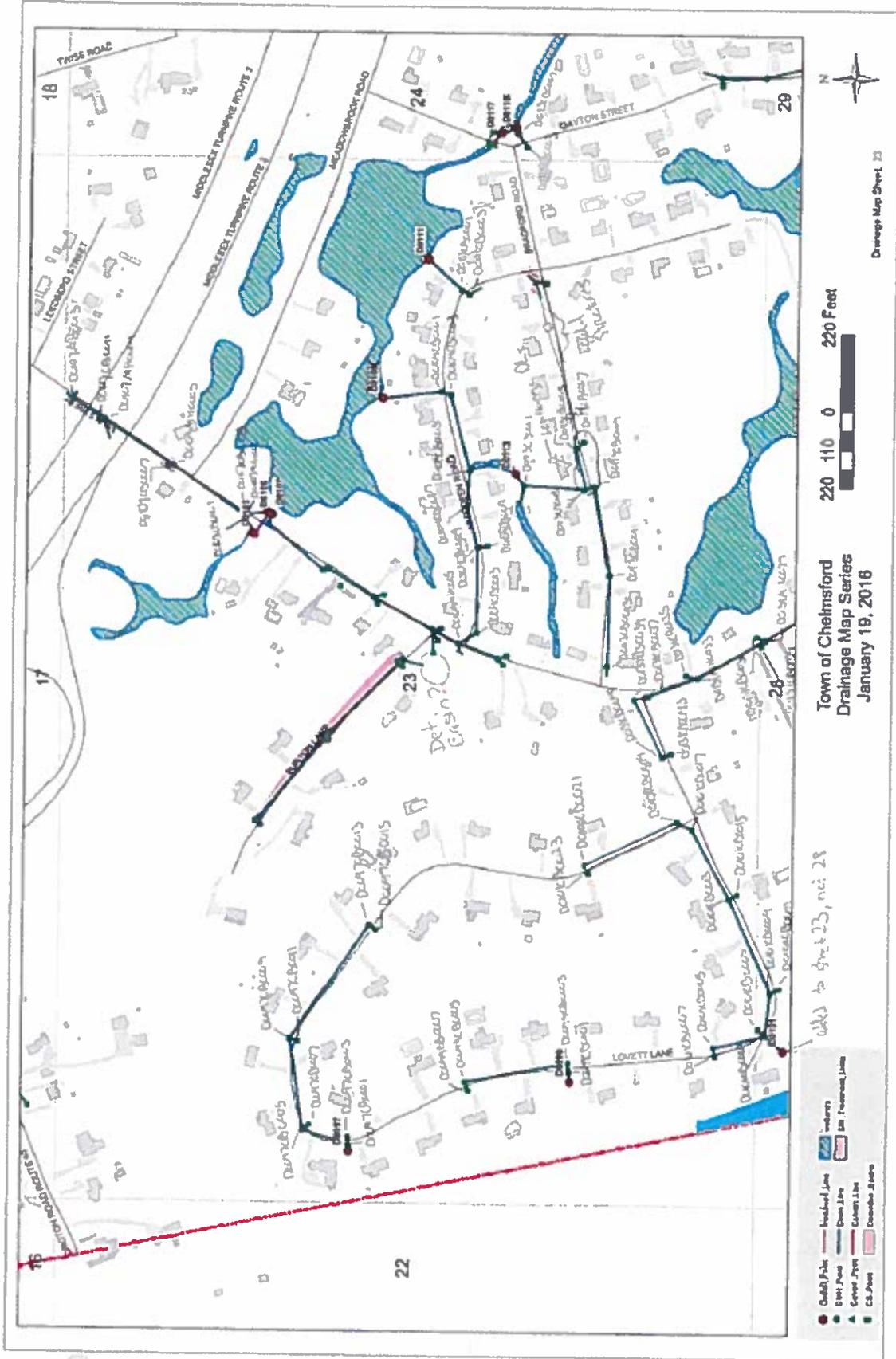
rain barrels would fill for every one-fifth inch of rainfall. The Great American Rain Barrel Company recommends one barrel for every 100 square foot garden.

Chelmsford will offer the Great American Rain Barrel in forest green, earth brown or nantucket gray for \$79, 34 percent off the retail price of \$119. Orders can be placed online or by phone and will be available for pick up from 5 to 7 p.m. May 3 at the Chelmsford DPW, 9 Alpha Road.

Orders must be placed by 5 p.m. April 25. For information: 800-251-2352;

[www.greatamericanrainbarrel.com](http://www.greatamericanrainbarrel.com)

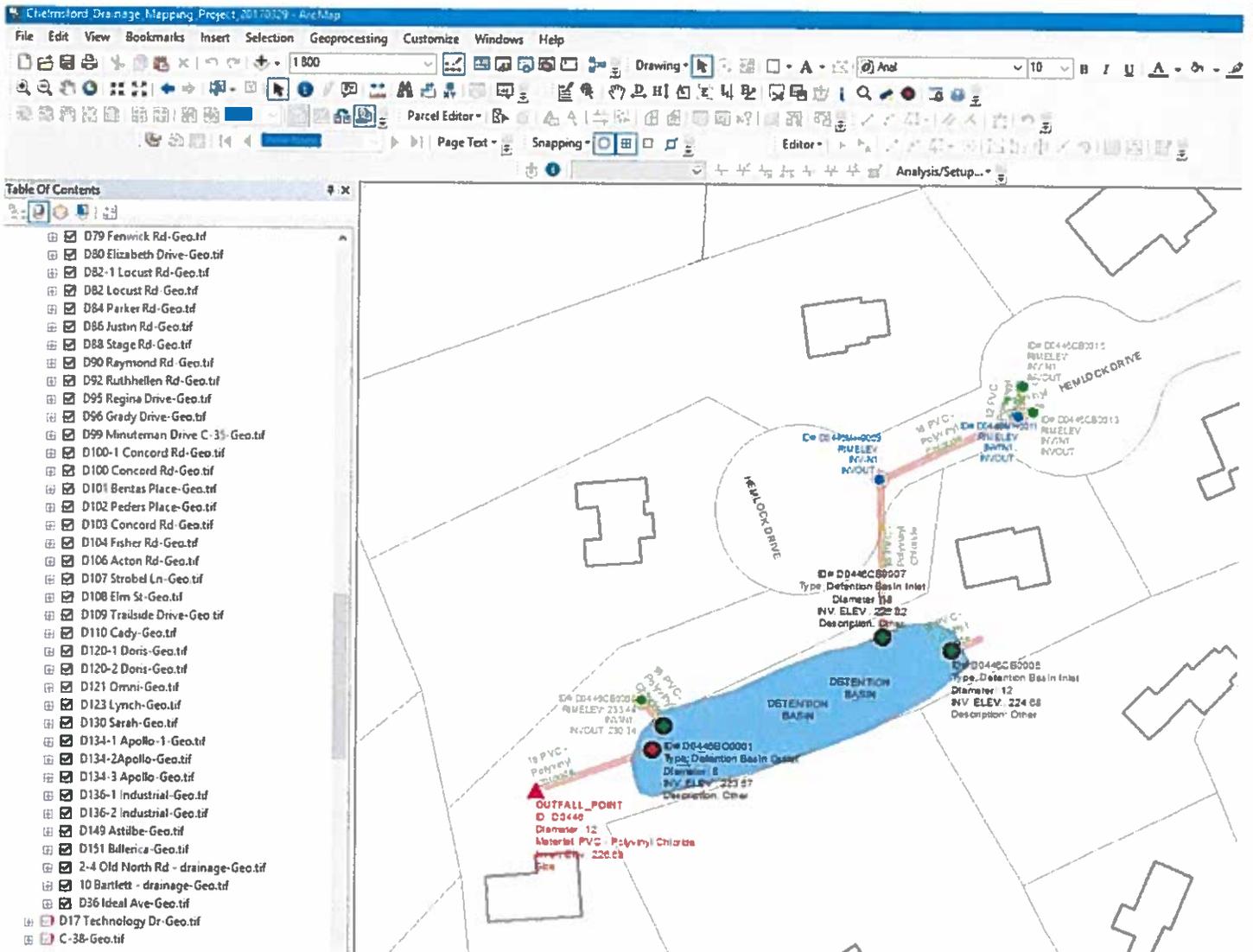
# DRAINAGE MAPPING ON GIS



Drainage Map Sheet 23

Added to sheet 23, not 28

# GIS SCREENSHOT OF UPDATES IN PROGRESS



# SAMPLE OUTFALL INSPECTION FORMS



## TOWN OF CHELMSFORD OUTFALL INSPECTION FORM

Dated: 05/07 Location: Clayville Rd Date: 7/20/16 Inspector's Name: C. Repke/pals, JF, DM  
 Photograph:  Private Road  Watershed Stony Brook Weather: Sunny P Cloudy Cloudy Rainy Drizzle  
 Temperature: 78°F Most Recent Precipitation: 12 22 24 Amount: .5" Owner: Town State Private Unknown  
 Flow: Yes  No

**OUTFALL CONDITION**

ISSUE	SEWER	WATER							
Storage Area at Structure Outlet	<input checked="" type="checkbox"/> Good, No Problems, No Blockage								
Structure									
Structure									

**PIPE CONDITION**

ISSUE	SEWER	WATER	WATER	WATER	WATER
Structure at Inlet	<input checked="" type="checkbox"/> Good, No Problems, No Blockage				
Structure					

**HEADWALL CONDITION**

ISSUE	SEWER	WATER
Structure at Inlet	<input checked="" type="checkbox"/> Good, No Problems, No Blockage	<input checked="" type="checkbox"/> Good, No Problems, No Blockage
Structure		

**SWALE CONDITION**

CONDITION	SEWER	WATER	WATER	WATER	WATER	DATE OF LAST INSPECTION
Structure at Inlet	<input checked="" type="checkbox"/> Good, No Problems, No Blockage					
Structure						

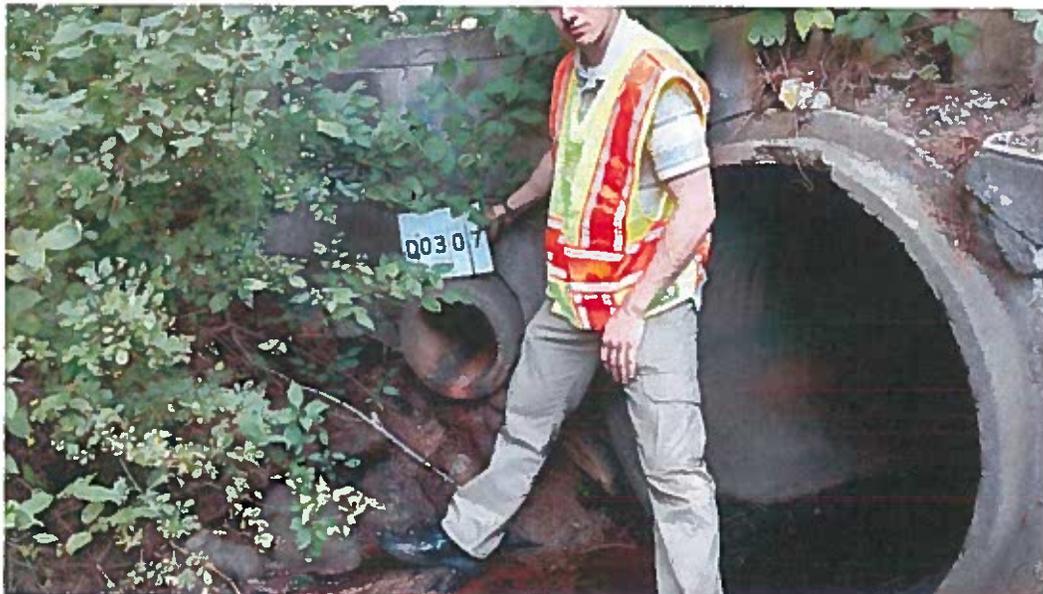
**WATER SAMPLING RESULTS**

PARAMETER	CONCENTRATION	CONDUCTIVITY	SALINITY	TEMPERATURE	PH	WATER COLLECTED	DATE TIME MET
5153 (EAL)	0.17 (2 mg/L)	112 (mg/L)	1.2 (ppt)	78°F	7.5		

**OUTFALL DISCHARGE LOCATION**

NAME	ADDRESS
<u>Central</u>	<u>Stony Brook</u>
<u>Stony Brook</u>	

Notes: \_\_\_\_\_



**STUDENT INTERNS INSPECTING OUTFALLS, INSPECTING CATCH BASINS AND TESTING OUTFALLS – SUMMER 2016**

**Inspecting Outfalls**



**Testing Outfalls**



**RENOVATION OF OLD BUILDING BEHIND THE LIBRARY  
INTO A COMMUNITY PARK WITH RAIN GARDEN**



**CENTER FIRE STATION REDEVELOPED INTO A COMMUNITY GARDEN**



# DPW TRAINING ON MUNICIPAL OPERATIONS



## Northern Middlesex Stormwater Collaborative 2017 Technical Training March 29, 2017

Northern Middlesex  
**STORMWATER  
COLLABORATIVE**

### Schedule

8:00 Breakfast and Sign In

8:15 Session 1: Pollution Prevention & Good Housekeeping in Municipal Operations,  
*Emily Scerbo, P.E./Wayne Bates, Ph.D., P.E.*

- ♦ MS4 Requirements for Your Good Housekeeping Program
- ♦ Standard Operating Procedures
- ♦ Beyond MS4: Environmental Compliance at Municipal Facilities

9:30 Break

9:45 Session 2: Presentation followed by Concurrent Group Activities

MS4 Requirements for Your Good Housekeeping Program

A. IDDE Program: Outfall Inspections and Field Screening, *Sarah Bounty/Emily Scerbo, P.E.*

- ♦ Outfall Inventory and Dry Weather Screening Requirements
- ♦ Field and Lab Testing Methods and Costs
- ♦ Health and Safety

B. Catch Basin Inspections & Tablet Data Collection Options, *Jennie Moonan, P.E./Natalie Koncki*

- ♦ Data Collection and Reporting Requirements and Options
- ♦ Tablet and Field Form Examples

#### Group 1

10:10 2A Activity in Highway Garage:  
Try Surfactant, Ammonia, and  
Chlorine Test Kits

10:30 Switch

10:55 Break

11:10 Stormwater Jeopardy

11:30 Evaluation Forms and Adjourn

#### Group 2

2B Activity in Front of Building:  
Perform CB inspection together using tablet and/  
or example field forms

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Engineers | Environmental Specialists



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