

Stormwater Training

Town of Kent
February 21, 2012



Summary of Today's Training

- **Stormwater Review**
 - 6 Minimum Measures
 - Minimum Measure 3: Illicit Discharge Detection and Elimination (IDDE)
 - Minimum Measure 6 – Good Housekeeping
 - Heightened Requirements/Phosphorus
- **New Developments**
 - Septic Law May 2011
 - Retrofits 2012
 - Banning Phosphorus Containing Fertilizers
- **Questions**

STORMWATER REVIEW

Why?

RIVERS ON FIRE



CLEAN WATER ACT

Municipal Separate Storm Sewer System (MS4)



- A conveyance or system of conveyances owned by a state, city, town or other public entity that discharges to waters of the U.S. and is:
 - Designed and used for collecting or conveying stormwater
 - Not a combined sewer
 - Not part of a Publicly Owned Treatment Works (POTW)

NYSDEC Stormwater Regulation

Permit Requirements: 6 Minimum Measures

1. Public Education and Outreach
2. Public Involvement/Participation
3. **Illicit Discharge Detection and Elimination (IDDE)**
4. Construction Site Runoff Control
5. Post Construction Stormwater Management
6. **Pollution Prevention and Good Housekeeping for Municipal Operations**

**Town of Kent also regulates stormwater (chapter 66)
and illicit discharges (chapter 43)*

ANNUAL REPORT

- Submit annual report to NYS June 1st
 - Six Minimum Measures
 - Heightened Requirements for East of Hudson (EOH) Watershed
 - Reporting period: March 8th - March 9th
 - Presented every year at town board meeting, posted on town stormwater website page

Minimum Measure 3: Illicit Discharge Detection and Elimination

A discharge to an MS4 that is not composed entirely of stormwater.

- **Exception:** permitted discharges and fire fighting related discharges
 - Unique frequency, composition and mode of entry



The Main Contributors

- Sanitary wastewater
- Effluent from septic tanks
- Car wash wastewaters
- Improper oil disposal
- Household toxics
- Laundry wastewater
- Radiator flushing disposal
- Spills from roadway accidents



Town of Kent Procedure

What to do when you find what you think might be an illicit discharge?

- Call the Town of Kent Code Enforcement Officer

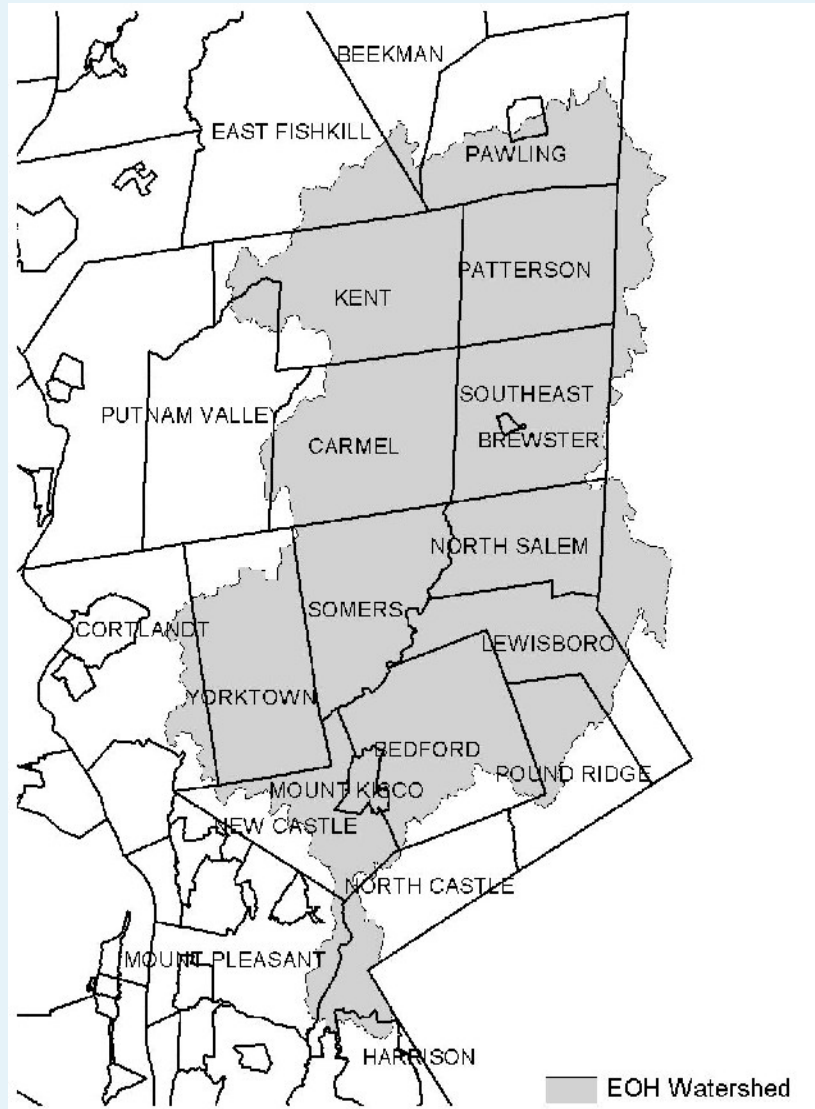
****The Town of Kent is responsible to report if illicit discharges have been corrected.**

Minimum Measure 6: Good Housekeeping

We report on:

- Acres of parking lot swept
- Miles of streets swept
- Number of catch basins inspected
- Post-construction control stormwater management practices inspected and, where necessary, cleaned
- Amount of fertilizers used on municipal property

NYC Watershed



- Over 9 million people in NYC, Westchester, Putnam, Orange and Ulster Counties enjoy clean, unfiltered drinking water from Croton, Delaware and Catskill watersheds.
 - 1.2 billion gal/day
- EOH Watershed
 - ~10% NYC Drinking water

Phosphorus Impacts

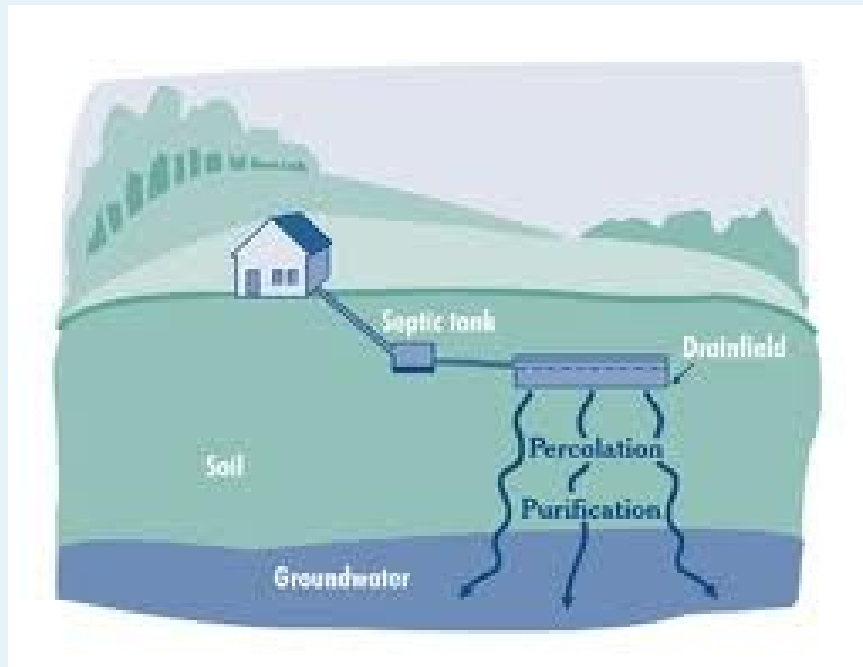
- **Excess Phosphorus causes:**

- algae blooms,
- excessive weed growth,
- decreased water quality,
- Decreased water recreation,
- negative impacts on fish, plant, animal life.



NEW DEVELOPMENTS

SEPTIC LAW 2011



Property owners with on-site wastewater treatment systems (septics) must have their septics inspected at a minimum of once every 5 years.

FERTILIZER

Which number tells you how much phosphorus is in this bag?



Bill Volk

5 YEAR EOH RETROFIT REQUIREMENTS

- Kent phosphorus reduction (33.6 kg/5 yr)
- Part of Intermunicipal Corporation (IMA)
 - Retrofit installation
- About \$40M OVER 3 YEARS

Table 3: High Intensity Development Retrofit Phosphorus Reduction Targets by MS4 (kg/yr)

MS4	Five Year Phosphorus Reduction	Annual Phosphorus Reduction
Bedford	32.2	6.5
Beekman	1	0.2
Brewster	9.2	1.8
Carmel	72.0	14.4
Cortlandt	11.6	2.3
East Fishkill	3.2	0.6
Kent	33.6	6.7
Lewisboro	35.5	7.1
Mount Kisco	18.7	3.7
New Castle	25.1	5.0
North Castle	1	0.2
North Salem	19.1	3.8
Patterson	17.2	3.4
Village of Pawling	4.3	0.9
Town of Pawling	3.5	0.7
Pound Ridge	9.5	1.9
Putnam Valley	1	0.2
Somers	50.0	10.0
Southeast	31.1	6.2
Yorktown	54.0	10.8
Dutchess County	3.1	0.5
Putnam County	30.9	6.2
Westchester County	8.2	1.6
NYS DOT	126.1	25.2

WHAT IS A RETROFIT?

- Stormwater practices installed to treat stormwater runoff from existing developed areas.
- Retrofit plan was developed in 2009 that was approved by NYSDEC
 - Implementation of stormwater retrofits in each town through 2015

TYPES OF RETROFITS

Types of Retrofits

- Pond
- Wetland
- Infiltration
- Filtering Practices
- Open Channels



Ponds



- Micropool Extended Detention Pond
- Wet Pond
- Wet extended detention pond
- Multiple pond system
- Pocket pond



Wetlands



- Shallow Wetland
- Extended detention Wetland
- Pond/Wetland System
- Pocket Wetland system
- Pocket wetand



INFILTRATION

Infiltration trench

Infiltration basin

Dry Wells

Hydrodynamic Separator



Filtering Practices

Surface sand filter

Underground sand filter

Perimeter Sand filter

Organic Filter

Bioretention



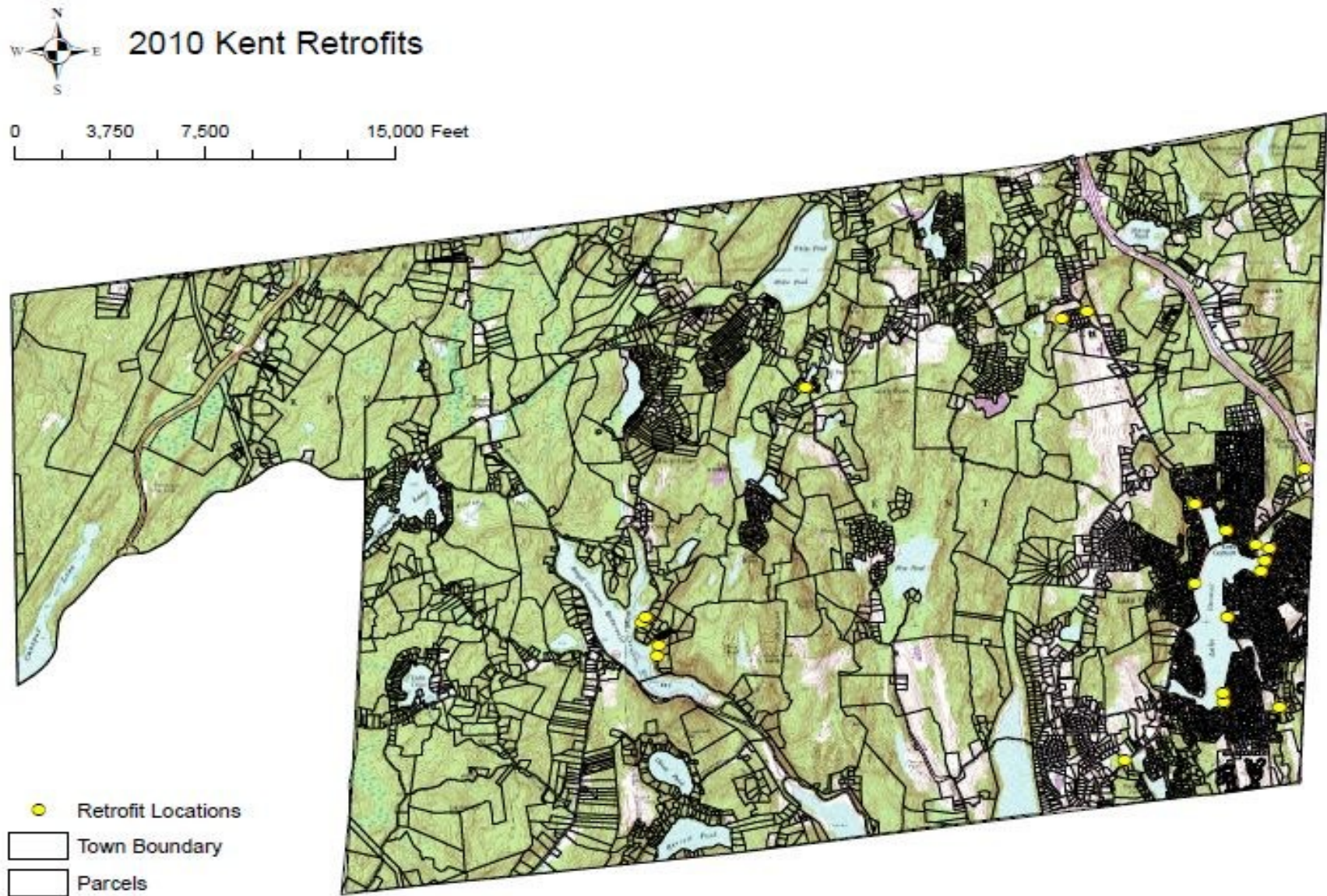
Open Channels

Dry Swale

Wet Swale



Currently Mapped Basins



KENT RETROFITS

CHURCH HILL ROAD

Outlet basin
Riprap spreader



ROUTE 52

Hydrodynamic Separator



GYPSY TRAIL ROAD

Channel Stabilization

Retrofits, Continued



FARMERS MILLS RD
Stabilized Drainage Channel



TERRY HILL/EAST LAKESHORE
Wet Pond

YEAR 3 RETROFIT PROJECTS

YEAR THREE PRACTICES

Practice Number	Location	Practice Type	TP Removal (kg)	Comments
4-Kent-MB-Addition-1 **	S. Lakeshore Drive west of Harriman	380 LF Grass Swale Stabilization	1.06	Discharge from 12"-15" pipes
5-Kent-PA-05 **	S. Lakeshore Drive west of Caryl	3,500 SF Ground stabilization, 50 LF grass swale stabilization	0.25	Parking area and discharge swale from BBall court
6-Kent-PA-31 **	301 Route 52	Hydrodynamic Sep	2.08	Putnam Stone
7 Kent-MB-1 **	S. Lakeshore-West of Yorktown, Huguenot	645 LF Grass Swale Stabilization	1.15	Discharge from 12" -15" pipes
8-Kent-MB-18 **	Highway Garage	1100 LF of Grass Swale Stabilization, 2,000 SF Ground Stabilization	2.03	2 hydrodynamic sep to be installed as per Hillcrest.
10-Kent-MB-Addition-2 **	Lake Shore west of Cottage	Wet pond	2.97	24"/30" pipes
11-Kent-MB-19 **	Ryan Park	950 LF grass swale, 100' outfall stabilization	0.10	\$75,000 grant awarded for project
12-Kent-MB-Addition-3 **	Lake Shore-west of Valhalla	Wet pond	16.06	2/24" pipes, north of #2.
13-Kent-MB-Addition-4 **	Ryan Park	Hydrodynamic Separators	0.16	35,000 sf of existing impervious pavement requires regarding.
14- Kent-MB-Addition-5 **	Old Town Court/Police Station	260 LF swale stabilization, 7,500 ground stabilization, hydrodynamic sep.	0.26	15,000 sf of impervious, requires regrading

Operations and Maintenance

- Dry Weather Testing/IDDE inspection
 - 20% outfalls annually
- Outfall map
 - EOH – Entire sewer shed
- Inspect a reasonable percentage of catch basins per year; if 50% full require cleaning
 - West Nile virus tablets
- Stormwater Basins
 - Require inspection and maintenance yearly





Site/Location	Cranberry Lane, Yorktown Heights NY
Inspection Date	July 28, 2010
Inspector	Cornerstone Associates
Basin ID	CL2
Summary	

Criteria	Satisfactory/ Unsatisfactory	Comments
Access	S	
Vegetation	S	
Spillway	S	
Inlet (s)	S	
Outlets	S	
Erosion	S	
Dams	S	
Debris/Sediment Accumulation		
Other		

Comments/Maintenance Requirements:

Town of Kent Stormwater Contacts

- Julie Butler – Stormwater Management Officer:
845-225-3900
- Bruce Barber (Stormwater Consultant): 914-962-
7733

Questions

- Bruce Barber, Cornerstone Associates
 - 914-962-7733 Phone
 - 914-962-0330 Fax
 - barberbruce@yahoo.com