SLR International Corporation
99 Realty Drive, Cheshire, Connecticut, 06410

September 3, 2025

Dr. Michael Klemens, Chairman
Planning & Zoning Commission
Town of Salisbury
27 Main Street
P.O. Box 548
Salisbury, CT 06068

SLR Project No.: 141.22100.00001

RE: Responses to George Logan's Public Hearing Comments (August 26, 2025)
PZC Application #2025-0287
Wake Robin Inn Redevelopment
104 & 106 Sharon Road
Salisbury, Connecticut

Dear Dr. Klemens and Members of the Commission:

During the Planning and Zoning Commission's public hearing on August 26, 2025 for the above-referenced application, George Logan, MS, PWS, CSE provided commentary regarding the proposed stormwater system design. The following are SLR's responses to Mr. Logan's comments.

C1. During his commentary Mr. Logan repeatedly claimed that no soil permeability information has been provided by SLR and insinuates that SLR's stormwater design cannot function and is improper since the permeability information is (allegedly) non-existent.

R1. Soil permeability test (i.e., infiltration test) data has been provided. Both falling head permeameter test results and in-situ double ring infiltrometer test results were included on Sheet SD-6 of the application site plans submitted on April 29, 2025, and July 28, 2025. The submitted permeability test and infiltration test results have been reviewed and accepted by the Town's licensed professional peer review engineers.

C2. Mr. Logan stated that impervious surfaces have increased between the current application and previous application resulting in increased stormwater discharge rates.

R2. The current Drainage Report (July 28, 2025) (see pages 4 and 5) shows no increases in peak rates of stormwater runoff from existing to proposed conditions on the property for the 2-year, 10-year, 25-year, 50-year and 100-year storms in accordance with the 2024 *Connecticut Stormwater Quality Manual* guidelines. The Drainage Report (July 28, 2025) has been reviewed and accepted by the Town's licensed professional peer review engineers.

C3. Mr. Logan asserted the design of the infiltration basins should include plants to provide superior stormwater treatment beyond the Minimum Average Annual Pollutant Load Reductions of 90% Total Suspended Solids, 60% Total Phosphorus and 40% Total

Nitrogen (shown on Table 4.3 on Page 48 of the 2024 Connecticut Stormwater Quality Manual).

R3. The infiltration basins proposed by the applicant are specifically designed to retain, infiltrate, and treat the entire Water Quality Volumes (WQV) from their contributing stormwater drainage areas. Water quality treatment is provided by stormwater runoff pollutants binding to soil particles beneath the basin as water infiltrates into the subsurface. Biological and chemical processes occurring in the soil also contribute to the breakdown of pollutants.

Page 49 of the 2024 Connecticut Stormwater Quality Manual references use of the University of New Hampshire Stormwater Center Best Management Practices (BMP) performance curves for determining the cumulative pollutant load reductions for infiltration practices. Based on the design infiltration rates and infiltration volumes for the proposed river stone-lined stormwater infiltration basins and the contributing drainage areas to the basins for storms up to and including the 1.3" water quality storm, the following cumulative pollutant load reductions will be provided by the proposed infiltration basins (refer to attached pollutant removal calculations prepared by SLR), which are superior pollutant load reductions.

WQ 140
Cumulative Pollutant Load Reductions: TSS=100%, P=99%, N=100%

DET 210
Cumulative Pollutant Load Reductions: TSS=100%, P=98%, N=100%

DET 220
Cumulative Pollutant Load Reductions: TSS=100%, P=96%, N=99%

Without modification of the current stormwater basin designs and engineering, it would be possible to specify and install several groupings/pods of 1-gallon containers of native plants to provide for some additional level of aesthetic quality, habitat, and potential nutrient uptake for the proposed stormwater quality basins. The following plants species and quantities are suitable for the basins, and it is anticipated that the plant groupings would be field located under the supervision of the landscape architect and civil engineer to achieve diversity and provide the best opportunity for establishment.

Switch Grass - 10 one-gallon containers
Big Blue Stem - 10 one-gallon containers
Little Blue Stem - 10 one-gallon containers
Joe Pye Weed - 10 one-gallon containers
Swamp Milkweed - 10 one-gallon containers

C4. Mr. Logan asserted the size of Stormwater Basin 210 is insufficient, due to the potential presence of bedrock and potential for back-to-back storms.

R4. Where encountered during construction of the basin, bedrock will be removed to a depth of 3 feet below the bottom of the basin and replaced with clean, fine sand fill material. All of the stormwater basins have been designed to completely drain

within 48 hours after the end of a storm event, in accordance with the 2024 CT Stormwater Quality Manual guidelines (Page 185) "…to allow for sufficient storage in the system for the next storm event."

C5. Mr. Logan stated that a significant portion of nitrogen in stormwater is due to atmospheric deposition.

R5. Refer to attached brochure entitled "Nitrogen and Stormwater Pollution" issued by the Connecticut Department of Transportation (CTDOT) Office of Environmental Planning available on CTDOT's Municipal Separate Storm Sewer Systems website. This brochure lists the common sources for nitrogen in stormwater runoff as: septic systems, fertilizer, grass clippings/leaves, sediment from construction sites, and erosion. It would appear that atmospheric deposition is not significant enough for the CTDOT to list as a source for nitrogen in stormwater runoff. Also, attached is CTDOT's brochure entitled "Phosphorus and Stormwater Pollution," which lists the common sources for phosphorus in stormwater runoff as: septic systems, fertilizer, grass clippings/leaves, detergents, sediment and erosion.

There are no septic systems on the property. The site plans include detailed erosion and sediment controls for implementation during construction (E&S Control plan was reviewed and accepted by the Town's licensed professional peer review engineers). The applicant is proposing to implement an organic-based landscape maintenance program to the maximum extent practicable. Additionally, collected grass clippings and leaves will be removed from the site.

Please feel free to contact me at (203) 271-1773 if you need additional information regarding the above responses.

Regards,

SLR International Corporation

Todd Ritchie, PE, BCEE, CFM, REHS/RS
Principal Civil Engineer
tritchie@slrconsulting.com

Attachments

141.22100.00001.s325.ltr

SLR global environmental and advisory solutions

JOB Wake Robin Inn - Pollutant Removal Calcs
SHEET NO. 1 OF 1 SCALE
CALCULATED BY MCB DATE 09/02/2025
CHECKED BY TAR DATE 9/2/2025

WQ 140

Impervious Area = 0.10 acres Infil. = 0.46 in/hr RD = DSV / IA

Design Storage Volume = 0.022 acre-feet

$RD = \frac{0.022 \text{ ac-ft}}{0.10 \text{ acres}} = 0.22 \text{ ft} = 2.64 \text{ in}$

RD exceeds x-axis on chart, 0.27 in/hr, RD = 2.0 in TSS = 100%, TP = 99%, TN = 100%

DET 210

Impervious Area = 1.42 acres Infil. = 3.0 in/hr

Design Storage Volume = 0.171 acre-feet

$RD = \frac{0.171 \text{ ac-ft}}{1.42 \text{ acres}} = 0.12 \text{ ft} = 1.44 \text{ in}$

2.91 in/hr, RD = 1.0 in, TSS = 100%, TP = 98%, TN = 100%

DET 220

Impervious Area = 0.45 acres Infil. = 1.58 in/hr

Design Storage Volume = 0.050 ac-ft

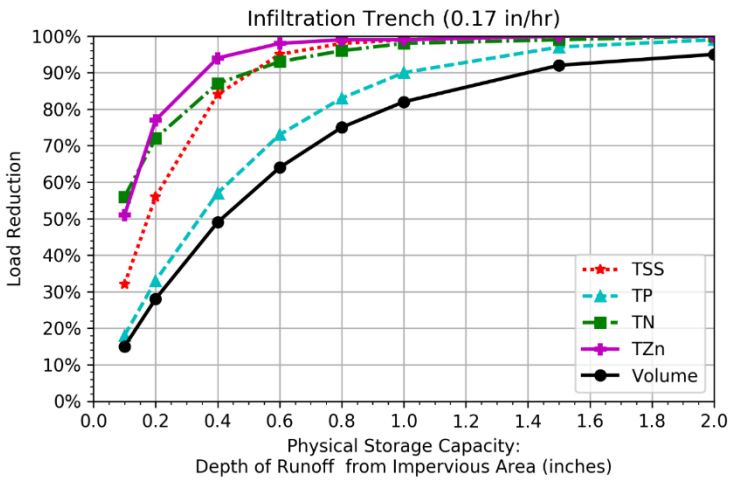
$RD = \frac{0.050 \text{ ac-ft}}{0.45 \text{ acres}} = 0.11 \text{ ft} = 1.33 \text{ in}$

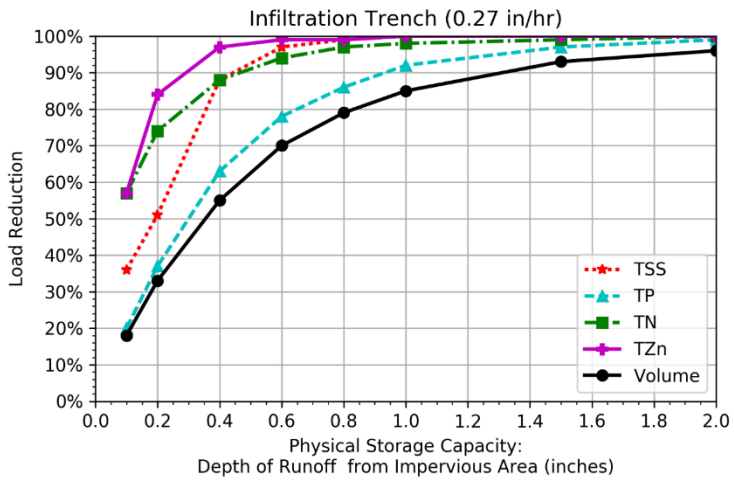
1.02 in/hr, RD = 1.0 in, TSS = 100%, TP = 96%, TN = ~~99%~~ 99%

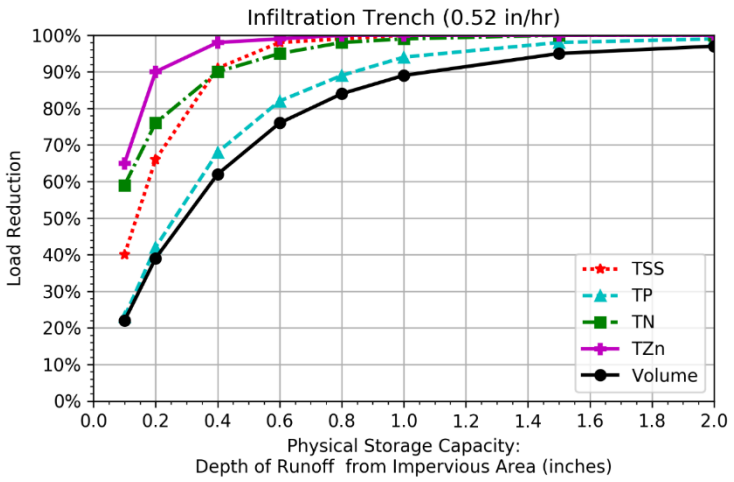
100% TSS Removal
96% TP Removal
99% TN Removal

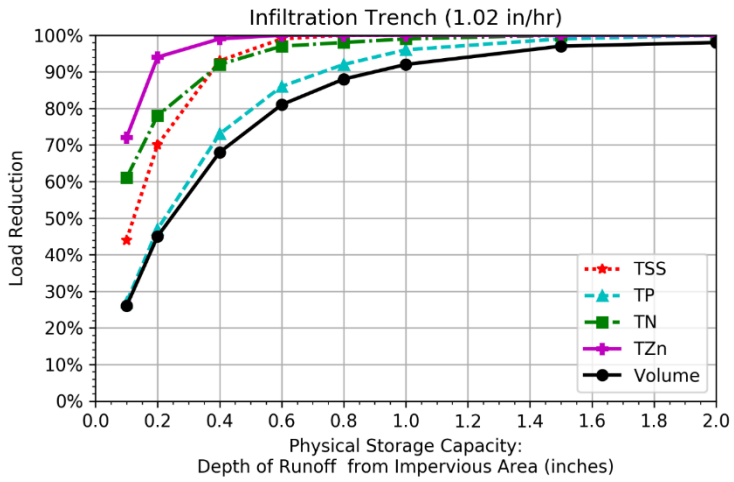
* Infiltration Trench Performance Curves from UNH Stormwater Center used instead of infiltration basin performance curves to closely match the performance of the proposed stone-lined infiltration basins.

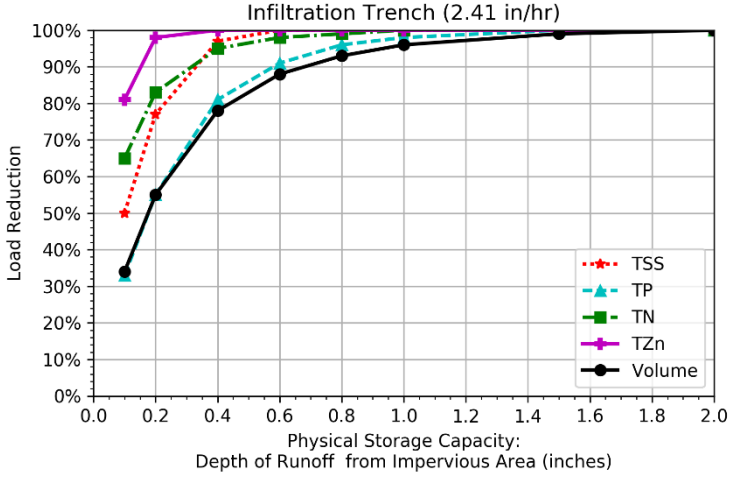
BMP Performance Curves for Soil Infiltration Rate: Infiltration Trench

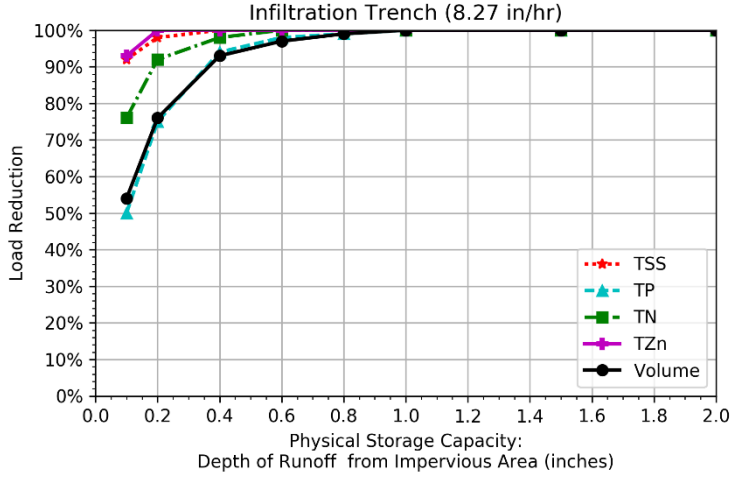












BMP Performance Tables for Soil Infiltration Rate: Infiltration Trench

		Cumulative Load Reduction				
Infiltration Rate (in/hr)	Depth of Runoff from Impervious Area (inches)	TSS	Phosphorus	Nitrogen	Zinc	Runoff Volume
0.17	0.1	32%	18%	56%	51%	15%
	0.2	56%	33%	72%	77%	28%
	0.4	84%	57%	87%	94%	49%
	0.6	95%	73%	93%	98%	64%
	0.8	98%	83%	96%	99%	75%
	1.0	99%	90%	98%	99%	82%
	1.5	100%	97%	99%	100%	92%
	2.0	100%	99%	100%	100%	95%
0.27	0.1	36%	20%	57%	57%	18%
	0.2	51%	37%	74%	84%	33%
	0.4	88%	63%	88%	97%	55%
	0.6	97%	78%	94%	99%	70%
	0.8	99%	86%	97%	99%	79%
	1.0	100%	92%	98%	100%	85%
	1.5	100%	97%	99%	100%	93%
	2.0	100%	99%	100%	100%	96%
0.52	0.1	40%	23%	59%	65%	22%
	0.2	66%	42%	76%	90%	39%
	0.4	91%	68%	90%	98%	62%
	0.6	98%	82%	95%	99%	76%
	0.8	99%	89%	98%	100%	84%
	1.0	100%	94%	99%	100%	89%
	1.5	100%	98%	100%	100%	95%
	2.0	100%	99%	100%	100%	97%

BMP Performance Tables for Soil Infiltration Rate: Infiltration Trench

		Cumulative Load Reduction				
Infiltration Rate (in/hr)	Depth of Runoff from Impervious Area (inches)	TSS	Phosphorus	Nitrogen	Zinc	Runoff Volume
1.02	0.1	44%	27%	61%	72%	26%
	0.2	70%	47%	78%	94%	45%
	0.4	93%	73%	92%	99%	68%
	0.6	99%	86%	97%	100%	81%
	0.8	100%	92%	98%	100%	88%
	1.0	100%	96%	99%	100%	92%
	1.5	100%	99%	100%	100%	97%
	2.0	100%	100%	100%	100%	98%
2.41	0.1	50%	33%	65%	81%	34%
	0.2	77%	55%	83%	98%	55%
	0.4	97%	81%	95%	100%	78%
	0.6	100%	91%	98%	100%	88%
	0.8	100%	96%	99%	100%	93%
	1.0	100%	98%	100%	100%	96%
	1.5	100%	100%	100%	100%	99%
	2.0	100%	100%	100%	100%	100%
8.27	0.1	92%	50%	76%	93%	54%
	0.2	98%	75%	92%	100%	76%
	0.4	100%	94%	98%	100%	93%
	0.6	100%	98%	100%	100%	97%
	0.8	100%	99%	100%	100%	99%
	1.0	100%	100%	100%	100%	100%
	1.5	100%	100%	100%	100%	100%
	2.0	100%	100%	100%	100%	100%

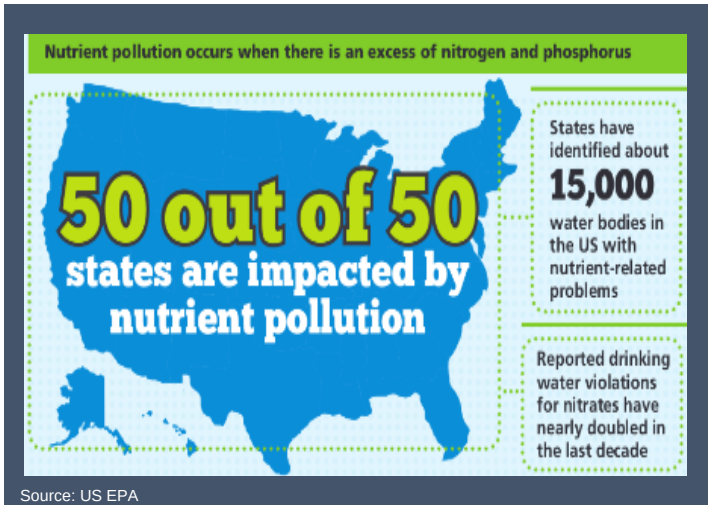
STORMWATER RUNOFF

Nitrogen-containing materials which are used throughout the state are transported to rivers and lakes by way of *stormwater runoff*.

Stormwater runoff refers to rain water which is unable to absorb into the ground and instead collects on the surface. Stormwater runoff will either flow to a water source at a lower elevation, or to a manmade catch basin.

Regardless of the path that stormwater takes, it commonly collects nitrogen compounds and other pollutants as it flows over farmlands, paved surfaces, and lawns treated with chemical fertilizers.

The stormwater then deposits high levels of nitrogen into rivers and lakes, causing toxic conditions for fish and other aquatic life.



Source: US EPA


Source: CT DEEP

"Polluted stormwater runoff is the most significant source of water quality problems"

CONNECTICUT DEPARTMENT OF TRANSPORTATION

OFFICE OF ENVIRONMENTAL PLANNING

WWW.CT.GOV/DOT/CTDOT-MS4


Source: CT DEEP

NITROGEN

AND STORMWATER POLLUTION

NITROGEN POLLUTION

Nitrogen is a naturally-occurring element which, due to human activities, has become a major concern for water quality.

Common everyday activities have caused nitrogen concentrations in rivers and lakes to reach dangerously high levels. Nitrogen feeds algal blooms, which choke out aquatic life and impact fishing and recreation.

With high levels of nitrogen in the water, fish and other organisms may suffocate under severe conditions.

In Connecticut, all of our major waterbodies and watercourses are effected by nitrogen pollution, with the ultimate discharge point being Long Island Sound.

Source: US EPA

COMMON NITROGEN SOURCES

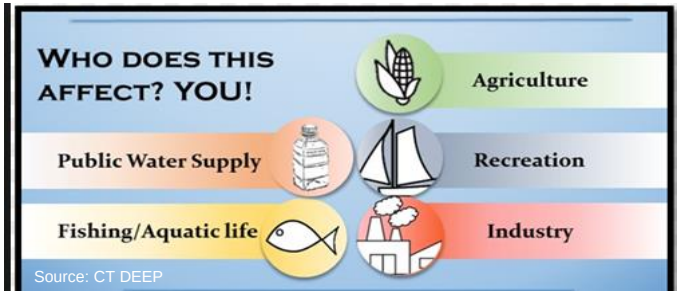
- Septic systems
- Fertilizer
- Grass clippings/leaves
- Sediment from construction sites
- Erosion

IMPACT ON LONG ISLAND SOUND

Each summer, nitrogen and phosphorus pollution cause oxygen levels in Long Island Sound to fall so drastically that fish cannot survive in certain areas.

Algal blooms stunt the growth of underwater plants, which provide essential habitats for shellfish and other small organisms.

Despite State and Federal regulations, areas of Long Island Sound continue to be inhabitable for aquatic life, largely due to Nitrogen pollution in Connecticut.



Source: CT DEEP

WHAT YOU CAN DO

- Limit lawn fertilizer use
  - Check the weather forecast before applying fertilizer – do not apply before a rain storm
  - Use fertilizer only during spring and fall when it can be readily used by plants
  - Never use fertilizer near waterbodies or watercourses
- Do not overwater your lawn
  - Overwatering will spread nitrogen and other nutrients
- Compost grass clippings on your property
- Regularly service septic systems
- Reduce automobile use and idling
  - Nitrogen Oxides (NOx) due to combustion of fossil fuels pollutes the atmosphere and later falls to water sources as acid rain

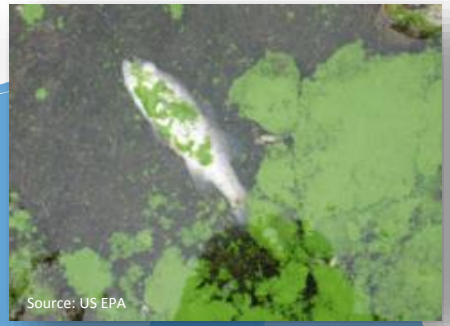
Source: US EPA

Sources of Phosphorus Pollution

- Septic systems
- Fertilizer
- Grass clippings/leaves
- Detergents
- Sediment
- Erosion

What is the Impact?

Under normal conditions, natural water sources should contain minimal amounts of phosphorus. All of the pollution sources listed above either directly or indirectly cause phosphorus to enter our state's waterbodies. With excessive phosphorus levels in a waterbody or watercourse, algae begins to grow exponentially, leading to algal blooms. This significantly reduces the dissolved oxygen in the water that is readily available to fish and other aquatic life. Fish cannot survive under such harsh conditions and will suffocate without appropriate oxygen levels in the water.



Source: US EPA

"Polluted stormwater runoff is the most significant source of water quality problems"

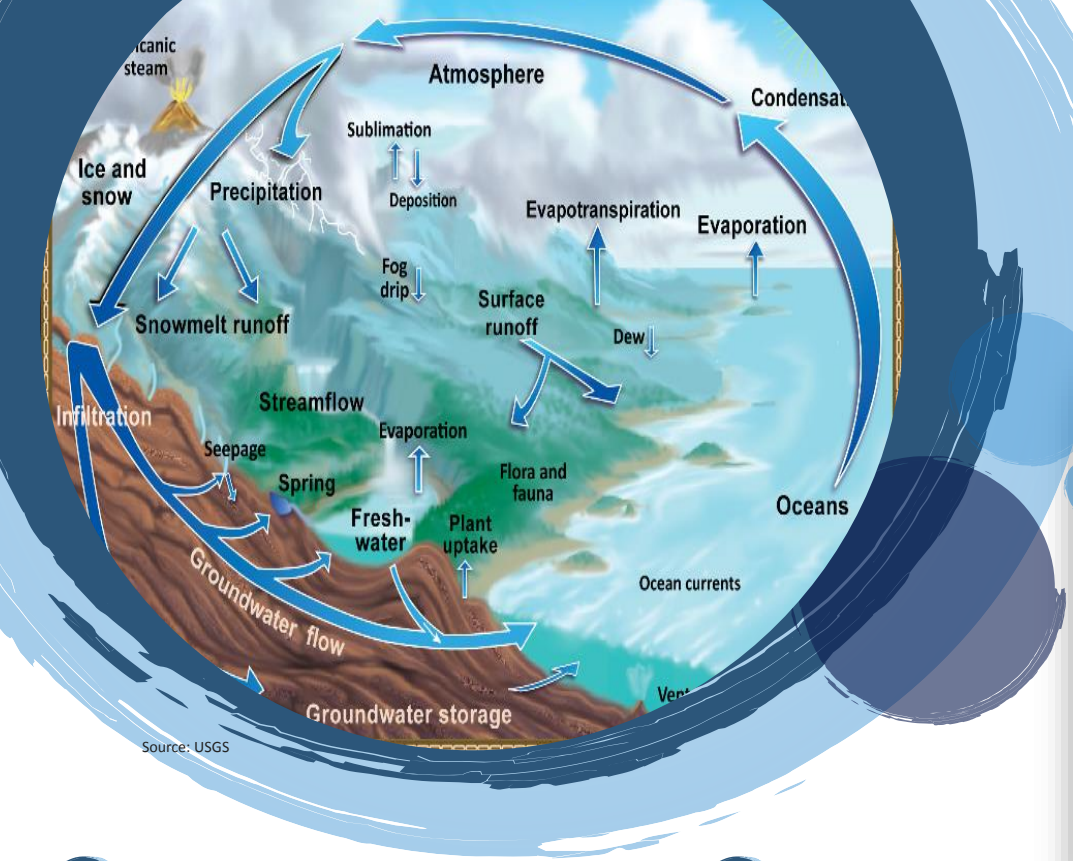
Source: US EPA

CONNECTICUT DEPARTMENT OF TRANSPORTATION

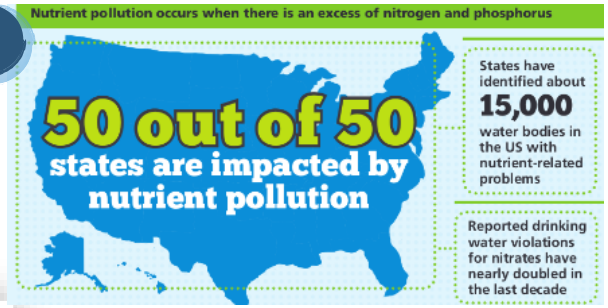
PHOSPHORUS

and Stormwater Pollution

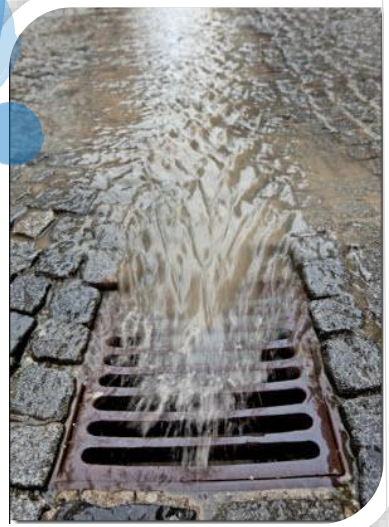
CONNECTICUT
DEPARTMENT OF TRANSPORTATION
OFFICE OF ENVIRONMENTAL PLANNING
www.ct.gov/dot/CTDOT-MS4



Source: USGS



Source: US EPA



How Does Phosphorus Contaminate the Water?

During rain and snow storm events, phosphorus-containing soil and materials are washed into nearby streams, lakes, and rivers via stormwater runoff. Any contaminated water which flows into stormwater catch basins on roadways and parking lots is discharged directly into natural watercourses.

Agricultural runoff, animal waste, sewage, and lawn care products all contribute to phosphorus water pollution.

What You Can Do

Source: US EPA

- Limit lawn fertilizer use
  - Check the weather forecast before applying fertilizer – do not apply before a rain storm
  - Use fertilizer only during spring and fall when it can be readily used by plants
  - Never use fertilizer near waterbodies or watercourses
- Do not overwater your lawn
  - Overwatering will mobilize phosphorus and other nutrients

Additional Solutions

- Compost grass clippings on your property
- Pick up pet waste
  - Especially important near water sources
- Regularly service septic systems
- Properly store and dispose of lawn chemicals

Source: US EPA